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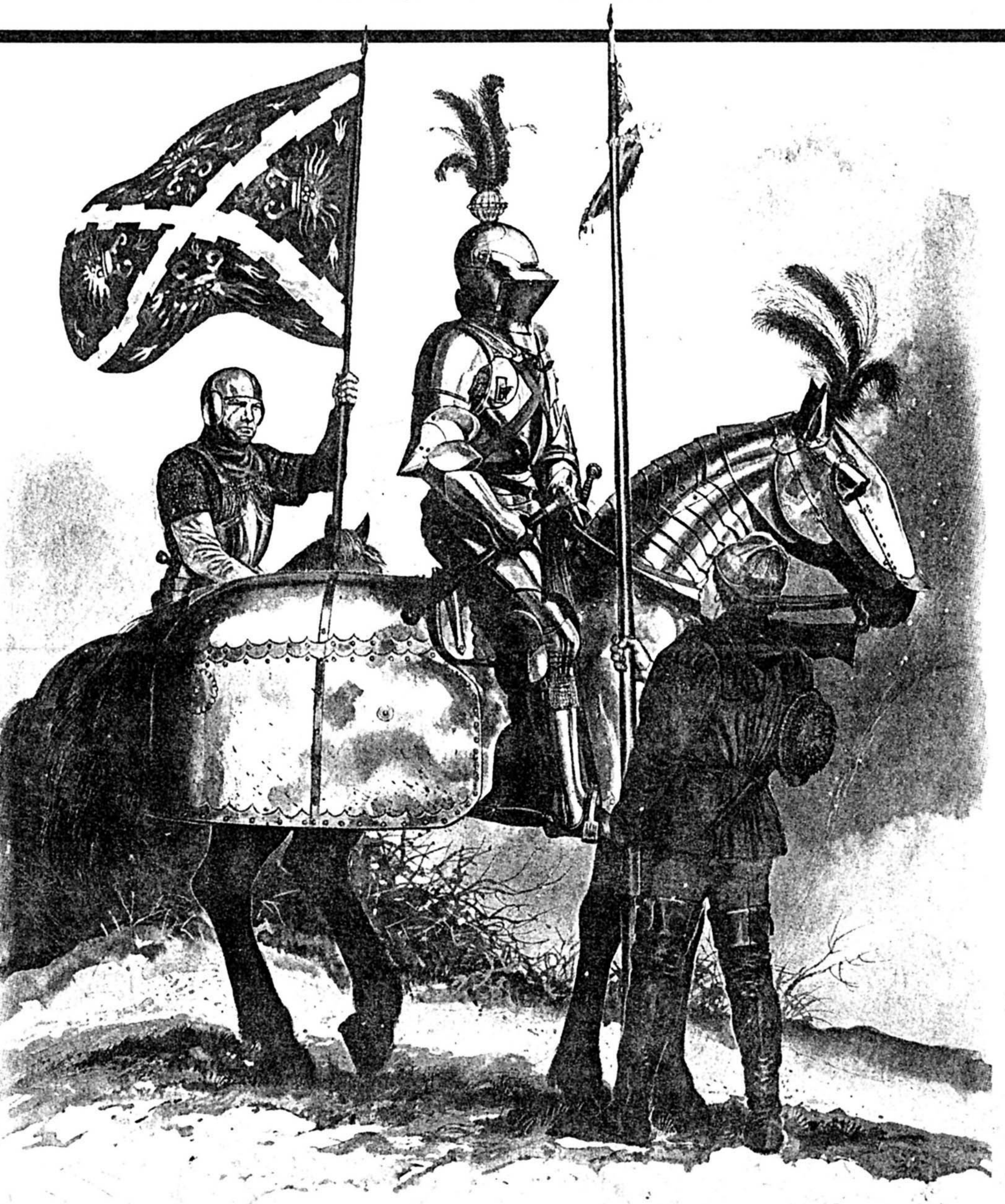
ARMIES OF MEDIEVAL BURGUNDY 1364-1477



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Introduction

This book deals with the organisation and functioning of the Burgundian armies under the Valois Dukes of Burgundy:

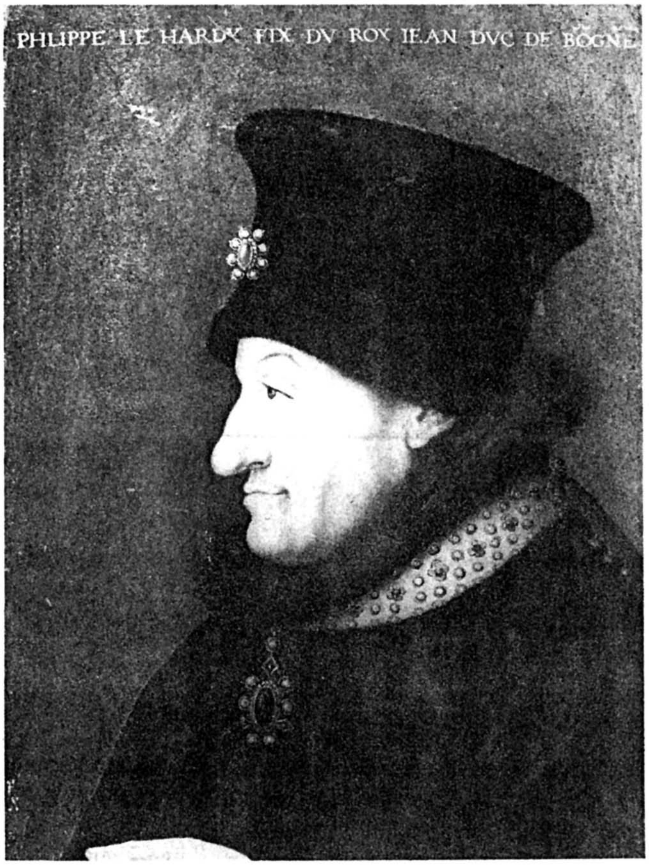
Philip the Bold (1342–1404; reigned 1364–1404)
John the Fearless (1371–1419; reigned 1404–1419)
Philip the Good (1396–1467; reigned 1419–1467)
Charles the Bold (1433–1477; reigned 1467–1477)

They are known as the Valois Dukes because Philip the Bold, the first duke, was the son of King John the Good of France, of the House of Valois, in the same sense that the English ruling house at the time was Plantagenet. King John the Good was captured by the English at the battle of Poitiers in 1356; his 14-year-old son Philip fought valiantly by his side until the bitter end, and as soon as he was in a position to do so, King John rewarded his son's courage and devotion by designating him Duke of Burgundy, a title that by chance had just become extinct.

The new Duke Philip's lands consisted only of the Duchy of Burgundy, whose capital was Dijon (see map), but he and his successors enlarged their territory by shrewd marital alliances or by conquest until it became one of the greatest powers in Europe.

Philip the Bold remained on the most friendly terms with his father, the king of France, and after John's death with his elder brother, who was crowned King Charles V in 1364. France and Burgundy supported each other economically and militarily, sending each other contingents of troops in wartime and co-operating in all respects.

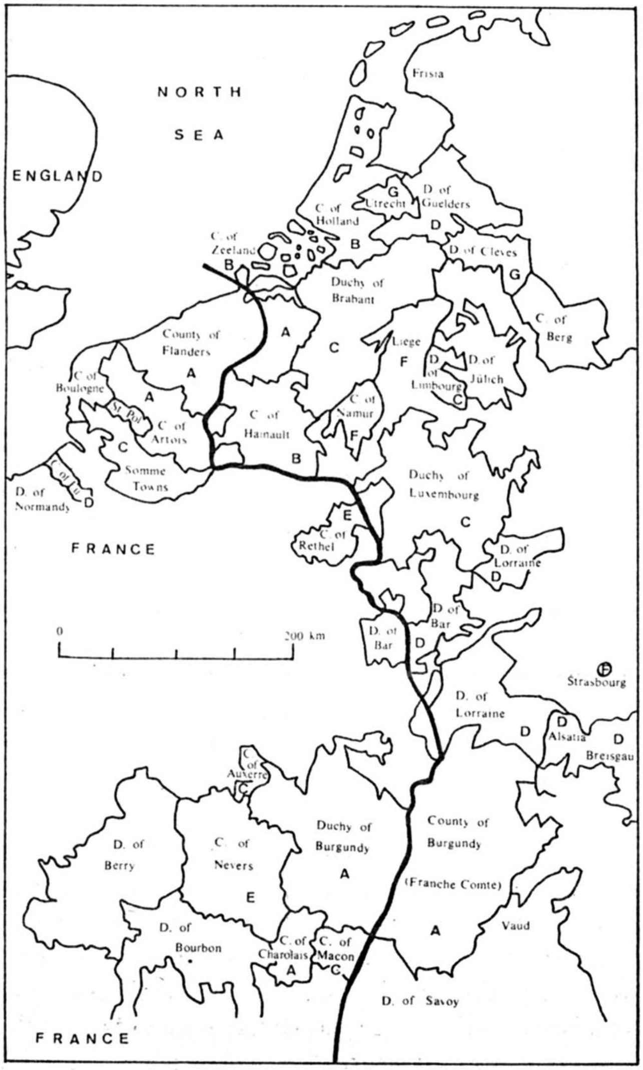
After the first duke's death, however, the family bond between the French royal house and the dukes of Burgundy grew progressively weaker. Duke John the Fearless had designs on the French throne, and openly admitted murdering the king's brother, Louis D'Orléans. The antagonism was such that Duke John himself was treacherously cut down in the very presence of the young king of France, and died at his feet. From then on, far from being allies of France, the powerful dukes of Burgundy were to represent the greatest threat that France was to know after the Hundred Years War. Only the violent death of the last duke, Charles the Bold, and the extinction of the male line, allowed the king of France (then Louis XI) to sleep easy in his bed.


PHILIPPE LE HARDY FIX DV ROY IEAN DVC DE BOGNE

Philip the Bold, the first Valois duke of Burgundy, from an anonymous portrait in Versailles Museum. Philip's immense energy, ambition, and closeness to the kings of France enabled him to increase his new duchy enormously, and to hand over a powerful political state to his son.

Charles the Bold hated Louis and was convinced that he intended to invade Burgundy. Louis thought Charles was mad; although he himself was one of the ugliest of French kings, he was fond of imitating Charles's maniacal gestures!

Charles[1] was the most military-minded of the dukes and loved the rigours of campaigning. His favourite reading was the works and lives of the great classical generals such as Julius Caesar, Alexander the Great and Hannibal, and it was he who completely restructured Burgundy's army, making it a model for almost all European armies for well over a century after his death.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C. of Nevers
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Vaud
D. of Bourbon
C. of Charolais
A
C. of Macon
C
D. of Savoy
FRANCE

Territories of Valois Burgundy. The heavy line shows the approximate borders of the Empire. A: Lands acquired by Duke Philip the Bold. B: Lands acquired by Duke John the Fearless. C: Lands acquired by Duke Philip the Good. D: Lands acquired by Duke Charles the Bold. E: Lands of the junior branch of the Valois dukes. F: Bishoprics under Burgundian control. G: Territory under Burgundian influence.

Organisation

It is of course wrong to imagine a single Burgundian army. The state of Burgundy was not only surrounded by potentially aggressive neighbours, but was split in four geographically, from east to west by the Duchy of Lorraine, and from north to south by the frontier between France and the Empire (see map). For although the dukes of Burgundy longed to wear a regal crown, they—in theory at least—owed allegiance to the king of France for their lands to the west of the frontier, and to the Emperor for all that lay to the east.

These rifts in the Burgundian state, together with the Valois dukes' aggressive political ambitions, necessitated from early times not only a main army, but one or more secondary armies, not to mention the maintenance of more or less substantial garrisons in towns and fortresses.

Until 1471, Burgundy's armies were recruited from four sources: nobles and their numerous followers; the ducal guard (household troops); town militia; and foreign mercenaries. These, following the French model, were divided into:

(1) Heavy cavalry, consisting of armoured men-at-arms, mostly nobles, forming the nucleus of the army.

(2) Light cavalry, drawn from the followers that most men-at-arms were required to bring with them: mounted archers, crossbowmen, and swordsmen, whose task was to harass the enemy before the main engagement, and to support the men-at-arms.

(3) Infantry, which formed but a small proportion of the army, and consisted of pikemen, archers and crossbowmen. It should however be noted that what we call 'cavalry' usually dismounted to fight, and most battles in this period were ultimately battles of infantry.

(4) The 'taskforce': usually overlooked, but absolutely vital to any medieval army, and although never included in the numbers of combatants, could be counted by hundreds if not

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[1] His appelation 'the Bold' is *not* a mistranslation of the 19th-century French historians' label '*le Téméraire*' ('the rash'), but is in fact what he was called during his lifetime: '*Charles le Hardi*'.

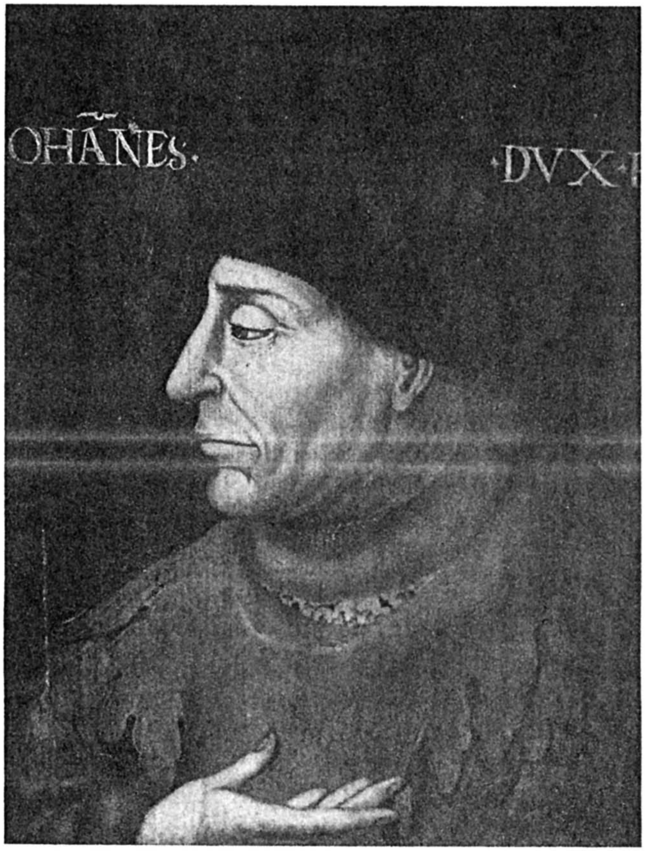
thousands in any war or mere troop movement. These were the miners, carpenters, stonemasons (for cutting cannon balls), blacksmiths, farriers, *brigandiniers* (for repairing brigandines), clerks, waggoners, barrel makers (barrels were often used for constructing temporary bridges), ropemakers (who were also responsible for providing bow and crossbow strings), saddlers, cooks, priests and surgeons.

Transport, Food, Medical and Finance

Manoeuvrability, important to any army, was provided by a vast team of waggoners and carters. Olivier de la Marche, writing about an expedition in 1474, mentions 2,000 waggons carrying the artillery and 400 waggons to transport 2,000 tents. This may be an exaggeration, but it cannot have been rare in the 15th century to see between 500 and 1,000 waggons accompanying an army. Transport had to be organized for everything from the dukes' gold plate to dozens of leather boats, and according to a document of 1468 a bombard alone required a minimum of 24 horses. Apart from pikes and swords, which were usually carried in bundles, most other items carried by an army on the march were transported in barrels, doubtless the commonest container of the middle ages. Anything from herring to wine barrels were used for carrying armour, crossbows, ammunition, gunpowder, mallets, axes and bowstrings; some were even fitted with locks.

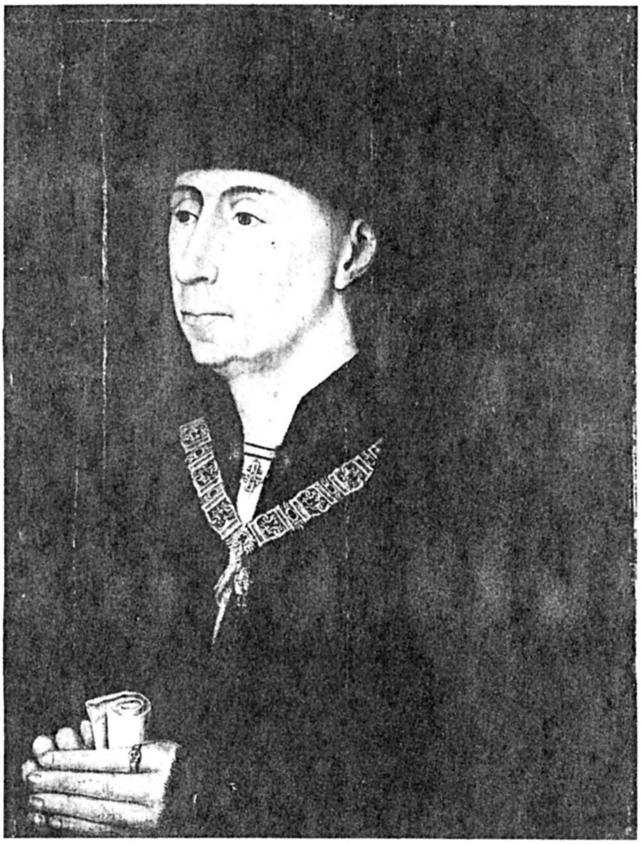
Provisions for the army were mostly obtained locally, and men were expected to buy and pay for their own food. Following the baggage train would be numerous merchants, travelling along with the army and selling their wares on the way. However, in spite of strict orders to the contrary, soldiers commonly pillaged for food, creating great unpopularity and antagonism among the civilian population. Most combatants were expected to cook for themselves, but the nobility brought their own cooks with them, together with utensils and tents. Provisions for horses always presented a problem, and we often find servants going far afield to buy fodder, sometimes under the protection of men-at-arms.

Although no clear texts have been discovered proving the existence of medical facilities, there was probably some sort of organisation. Two surgeons were present during the siege of Vellexon (1409), and occasional mentions are found in the lists of personnel of contemporary French armies on campaign; there are one or two illustrations in Burgundian manuscripts of doctors looking after wounded soldiers, and there exists a list of the medicines and instruments that a surgeon required in the field.



John the Fearless, perhaps the most astute of the Valois dukes, and certainly the best militarist. The antagonism between Burgundy and France started during John's reign, and reached a peak when he was murdered by the French while talking to the Dauphin on the bridge at Montereau. It is ironic that Duke John is wearing a mail shirt under his clothing in this anonymous portrait. (Musée de Besançon)

Typically, the financial aspect was meticulously organised, so much so that Charles the Bold has been accused of being the precursor of modern bureaucracy—though unjustly, for his predecessors were equally meticulous. The ducal accounts preserved at Dijon mention every detail of expenditure, from the manufacture of bombards to the number of loaves eaten by a small contingent travelling to join the main army. All the ducal accounts, whether military or civil, were centralised at the two *chambres des comptes*, in Dijon for the two Burgundies, and in Lille for the northern pos-



Philip the Good, by Rogier van der Weyden (c.1400–64). Under Philip's reign Burgundy reached the zenith of its glory; although the extent of its territorial possessions was greater under his son, Charles the Bold, the decline had already set in by the time of Charles's accession in 1467. A wise and able ruler, Philip took great care to surround himself with the astutest statesmen of the time. He founded the Order of the Golden Fleece, whose emblem he wears here: a chivalric 'club' loosely based upon the English Order of the Garter. (Musée des Beaux-Arts de Dijon)

sessions. There is occasional evidence of serious delays in paying the troops, or of soldiers being substantially underpaid. Although badly paid troops were apt to pillage and desert, it is possible that this was an intentional measure to discourage desertion, although rumours circulated at one time to the effect that the Marshal had appropriated the funds. Booty was considered to be a part of men's pay, which accounts for the total destruction of besieged towns once they had been taken: during the pillage of Dinant in 1466 even the lead from the roofs of houses was taken.

Recruitment

Right up to the middle of Charles the Bold's reign, when the first permanent armies were appearing, the dukes of Burgundy, like all European potentates, relied on feudal levies for their military force. Early medieval feudalism, based on gratuitous military service from vassals, had gradually been abandoned in France during the 14th century: it was unreliable, providing troops for inadequate and irregular periods of service. Instead, monarchs summoned their vassals when needed, and paid them for their service, a sort of semi-feudalism lying between true feudalism and the creation of standing armies.

The nucleus of the army was the man-at-arms. Apart from major aristocracy such as dukes, counts and barons, the men-at-arms consisted of:

(1) *Chevaliers bannerets*: powerful and rich nobles who had the right to raise a banner—a square or rectangular flag bearing their arms.

(2) *Chevaliers bacheliers* or *bas chevaliers* : members of the lesser aristocracy, who bore a forked pennon.

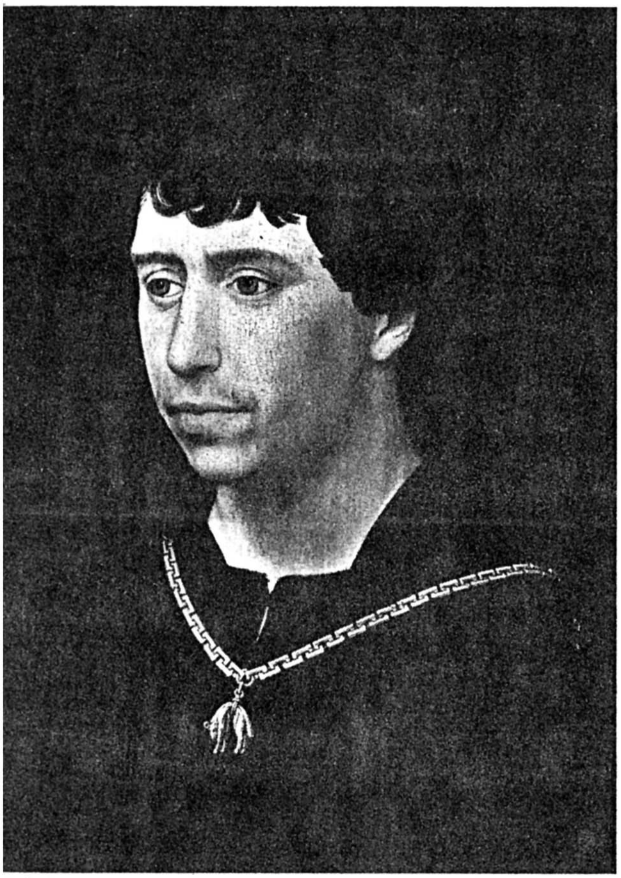
(3) *Écuyers* (squires): minor aristocrats or bourgeois who were affluent enough to provide themselves with the necessary accoutrements: armour, horses, archers and valets. Throughout the whole period of the Valois dukes the majority of men-at-arms came from the two Burgundies, and to a lesser extent the province of Artois. Men-at-arms were paid according to their rank. A *chevalier bachelier* could be promoted to a *chevalier banneret* by applying to the captain of the army; he would have to have between 25 and 50 men-at-arms under his command to be upgraded, and if his application were successful the points of his pennon would be ceremonially cut off, leaving him with a square or rectangular *banneret.*

Cities and towns in Burgundian territory were also subject to certain feudal obligations in spite of their jealously-guarded rights. Much of the manpower and infantry were drawn from Flanders, Holland and Zeeland, and the Flemish towns in particular were renowned for their pikemen. They are described in an account of 1471 as 'each having a sallet, brigandine, sword and pike, or a long lance with a slender shaft and a long sharp spear-head, cutting on three sides'. In spite of their reputation they contributed little but trouble to the dukes, demonstrating a remarkable obstinacy to muster, endlessly arguing over pay and length of service, and on at least two occasions running ignominiously away in the face of the enemy. The northern towns gradually sent fewer and fewer troops, and fulfilled their feudal obligations by aying scutage or shield-money, which was used to hire mercenaries.

trength

Even before officially taking possession of the Duchy of Burgundy in 1364 the first Valois duke, Philip the Bold, set about organising its defence. He named a lieutenant and a marshal, and ordered a complete review of the troops that could be levied from his duchy. From the records that have survived in Dijon, the capital, we know that this review recorded a total of one *chevalier banneret*, 134 *chevaliers bacheliers*, 105 *écuyers*, 19 mounted archers, one trumpeter and a farrier. If this figure of 259 combatants seems unbelievably small, it should be remembered that at this time Burgundy consisted only of the duchy (see map), and that the king of France, in whose territory Burgundy lay, could be completely relied on for any necessary military assistance. It was, after all, his land, and the duke was his own son. But from these modest beginnings the dukes of Burgundy were to create one of the most powerful armies of Europe, and certainly the most modern.

When Duke Philip's father-in-law, Louis de Maele, died in 1384, Philip inherited, as he had planned, vast lands: Flanders, Artois, the county of Burgundy (also called the Franche-Comté), Rethel and Salins. His military power was consequently considerably enhanced; and when he travelled up to Flanders later in the same year we find him with a large escort of nine *chevaliers bannerets*, 76 *chevaliers bacheliers*, 216 *écuyers*, two mounted archers and a contingent of 46 Genoese crossbowmen—the first time that we learn of foreign mercenaries among his troops. In 20 years, through a brilliant marital alliance, John had increased his estates immeasurably, and created an army to be reckoned with.



Charles the Bold, last of the Valois dukes, aged about 30: after Rogier van der Weyden. Charles remains the most unfortunate and enigmatic of all the Burgundian dukes. Literally hacked to an appalling death by the Lorrainers and Swiss at the battle of Nancy in 1477, he left only a daughter, who married the Emperor Maximilian. The Burgundian state collapsed shortly afterwards, and was divided between France and the Empire. (Dahlem Museum, Berlin)

In enumerating the armies of Burgundy the historian is faced with the exaggerations so common in the middle ages, and very great care is needed. For example, at the Liège rebellion of 1408, Monstrelet, a contemporary chronicler, mentions 30,000–35,000 Burgundian combatants, and 30,000 Liègeois[1]. The latter figure may even seem to be confirmed from the report of another quite independent chronicler, Christine de Pisan. Fortunately, however, the truth is revealed from the ducal salary accounts, which show that John put into the field no more than 3,915 men, including ten trumpeters and ten minstrels!

In spite of his extensive lands the second duke, John the Fearless, probably never put many more than 10,000 combatants in the field. His largest army was probably that mustered in 1417 for an attack on Paris, of which we know the exact composition—See Table A.

John's large army was, however, an exception: the Burgundian armies of the first three dukes seldom numbered more than 6,500 combatants, and were often smaller. It was not until Charles the Bold's reign that Burgundian armies of 10,000 and more became common, though even then a large

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[1] It is noteworthy that the total population of Liège at this time was no more than 20,000!

Table A: Army of 1417

	Burgundian troops and mercenaries	*Ducal guard*	*Flemish contingent*	*Total*
Seigneurs d'Hotel		19	15 men-at-arms (unspecified)	6,081
Bannerets	66			
Bacheliers	119	1		
Écuyers	5,707	154		
Mounted soldiers	4,102	143	87	4,332
Infantry				
Trumpeters	62		2	64
Minstrels	50	3		53
Heralds	3			3
Priest	1			1
				19,534

proportion of combatants were mercenaries; there may have been around 15,000 Burgundian combatants fighting the Liègeois in 1467 and some 12,000 at the battle of Morat in 1476.

An analysis of four of John the Fearless' armies has provided the following breakdown by place of origin:

Flanders and Artois	38%
The Burgundies	29%
Allies and mercenaries	33%

These proportions probably hold true for Duke John's successors, and it may be noticed that a third of the troops had to be found outside native Burgundian territory. Indeed, the Burgundian dukes always suffered from a shortage of troops: they could always be outnumbered by the French, and Charles the Bold was outnumbered even by the Swiss and their allies at Nancy in 1477. The usual way of increasing military manpower was to persuade one's allies to fight on one's side, or at least to contribute some troops, and to hire mercenaries. Although all the Burgundian dukes had recourse to mercenaries, Charles the Bold was the master of recruiting these professional soldiers; from 1472 onwards he used increasingly greater numbers of Italian and English mercenaries, together with smaller groups of Germans and Swiss.

The Italian mercenaries

The Italians, with their private armies of *condottieri*, were ideally suited for mercenary recruitment, and Charles the Bold especially admired them[1]. In 1471 he wrote to the signory of Venice asking them to allow him to employ the greatest *condottiere* of the century, Bartolomeo Colleoni, who although aged 70 and living in semi-retirement in his castle still enjoyed a legendary fame. It says much for his reputation that the Venetians refused to let him go, fearing that his absence would invite an attack by the duke of Milan; and in spite of numerous negotiations at ambassadorial level, endless correspondence and huge offers of money, Charles was never able to obtain Colleoni's services. However, in 1472 and 1473 he succeeded in hiring at least three other *condottieri*, including Nicola de Monforte, count of Campobasso, who was to betray him dreadfully at the battle of Nancy four years later. The three Italians brought along 650 four-horse lances, 500 footsoldiers and 500 mounted crossbowmen, and contracted to serve Charles for three years. In the following years more and more Italians were procured, and Charles's army at the end of his reign was probably dominated by them, at least as far as his captains are concerned.

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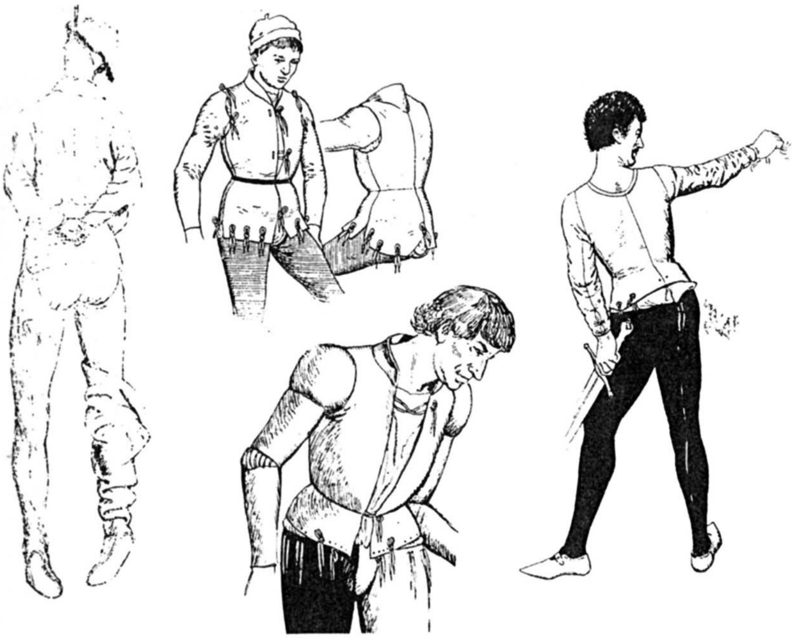
[1] See MAA 136, *Italian Medieval Armies 1300–1500*.



Practically every man in medieval Europe wore hose on the lower half of his body. They were originally separate leggings shaped rather like waders, and laced to the doublet. (Left) From studies of hanged men by Pisanello (1395–1455), reproduced by permission of the Frick Collection, New York. This shows separate hose with attached leather soles. (Top) The method of fastening the 'points' or laces. (Bottom and right) Double hose, which superseded separate hose, with the two legs joined into a single garment; these were common by the end of the 15th century. (Drawings by G. A. Embleton)

The English mercenaries

Ever since English and Welsh archers proved their worth against the French during the Hundred Years War, they had been a favourite acquisition of mercenary-seekers. The dukes of Burgundy who, because the wool trade was vital to their northern possessions, nearly always maintained friendly relations with the English, often used small numbers of these reliable archers before 1472. In that year King Edward IV sent Charles the Bold 11 men-at-arms, 27 mounted archers and 16 archers on foot, followed by 200–300 more archers, who distinguished themselves at the siege of Nijmegen in 1473. In 1474 King Edward sent another contingent of 13 men-at-arms with 1,000 archers, who fought bravely at the battle of Neuss against the Emperor's army. From then on, we find Sir John Middleton captain of an entirely English company of ordinance in Duke Charles's army, and in 1476 there were 780 mounted English archers in the ducal household guard. It is strange to see names such as Dickfield or Ebrington appearing among the combatants at the battle of Morat in May of that year, and many must have been slaughtered by the Swiss after Charles's ignominious defeat. At Charles' last battle at Nancy in 1477 about 1,000 British archers were present. The few survivors struggled back to England: one John Turnbull brought back only 34 out of the 96 in his command.

The Swiss and German mercenaries

These were used to a much lesser extent. It is often difficult to know which nation is meant in contemporary accounts, for the term 'Germans' was used indiscriminately for any peoples living within the confines of the Empire. The word 'Swiss' was only starting to come into popular usage at the end of the 15th century, and implied the Confederate cantons: the Swiss probably thought of themselves as Germans, after their local identities of Bernese or Lucerners or Zürichers. The reputation of the Swiss as a fighting force was made in the 14th century when the Confederates repeatedly defeated the Habsburgs' far superior armies by a combination of their mastery of the halberd, cunning tactics, and a total disregard for danger together with an inordinate delight in fighting. By the 15th century they had developed a pike phalanx or square that was impenetrable by cavalry, and were the first to bring a flexible and important infantry force to European armies[1].

In 1444 Philip the Good employed 500 or 600 of them at the battle of Montlhéry, where they confronted the future King Louis of France. Although they were defeated they made an impression on the young prince that was never forgotten, and his successors not only remained on good terms with them, but employed large numbers of them in the French army during most of the 16th century. Both the Swiss and German mercenaries rarely took prisoners, massacring princes, nobles and common soldiers alike, and the increasing use of these professional warriors towards the end of the middle ages struck a heavy blow to the old chivalric code of honour.

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[1] See MAA 94, *The Swiss at War 1300–1500*.

Charles the Bold's Permanent Army

The levying of vassals and recruiting of mercenaries was inefficient and extremely slow. In 1467 it took over two months to muster forces for the Liège campaign, and troops often arrived after the fighting was over. The only solution was to pay for a permanent professional army. There had been a permanent ducal household guard from at least 1419. Powerful aristocrats also maintained similar, smaller bodyguards, and towns retained permanent garrisons, but there was nothing that could be called a standing army.

In 1467, after the Liège campaign, Charles the Bold asked his captains if any of their men would be willing to continue their service beyond the normal time, in order to assure the occupation of the principality. Those who accepted were garrisoned at Liège and Maastricht and were immediately paid for 15 days, but unfortunately no records seem to exist that would tell us how long these men served.

In January 1471 war erupted in Picardy, and although peace was proclaimed in March Charles took the unprecedented step of continuing to recruit troops. In April Charles announced his intention of mustering 1,250 lances; and any men-at-arms, archers or others wishing to serve in his *ordonnance*, as it was called, were to gather around Arras in Artois on 15 May, with their weapons and equipment. On 20 May the duke proclaimed his wish to reinforce the number of his companies with 1,200 crossbowmen, 1,250 handgunners and 1,250 pikemen, who were to present themselves, fully equipped, before 15 June. On 29 June Charles went down to Dijon and announced that any men-at-arms, archers, crossbowmen, handgunners or pikemen in the two Burgundies wishing to serve should muster on 2 August, armed and equipped in accordance with 'an ordinance soon to be proclaimed'. This Abbeville ordinance of 31 July 1471, the first of three principal documents, was to mark the progress of Burgundian military power from an antiquated, inefficient feudal system to that of a modern army. In addition to feudal levies, the town militia and foreign mercenaries, who could still be called up in time of war, Charles now had a serious force at his permanent disposal. At the same time he transformed the household troops, increasing them in 1474 to an élite force of about 40 mounted chamberlains and gentlemen, and a personal bodyguard of 126 men-at-arms and 126 archers. In 1476 the household troops consisted of 400 infantry, and the guard included four 100-strong companies of mounted English archers. On the eve of the battle of Morat the household troops alone numbered over 2,000 combatants.

The Compagnies d'Ordonnance

Charles the Bold's military reputation rests mainly on this extraordinarily detailed re-organisation of his armies: his *compagnies d'ordonnance*, although at first based on earlier models of King Charles VII of France, were to become the basis for most 16th century armies for long after his untimely death at the battle of Nancy in 1477, and may be said to have influenced the organisation of all European armies in early modern times.

Charles introduced many ordinances, the first being in 1468, which dealt mainly with disciplinary measures and equipment. However, the most important and enlightening ordinances were those of 1471, 1472 and 1473 from which a remarkable picture of the life and organisation of a late medieval army may be gleaned: salaries, leave, uniform, equipment, drill, inspections, flags, billeting, roll-calls, punishment—all are laid down in the detail that reflects the direct intervention of Charles himself. It is very unusual to find Charles the Bold's military ordinances set out in full in modern history books, but as these are so important to the understanding of the organisation of his armies, particularly the remarkable ordinance of St. Maximin, I have set down the contents of almost all the clauses with very little editing:

(1) The Abbeville ordinance: 31 July 1471

The Abbeville ordinance dealt with the organisation of the 1,250 lances that were recruited. Around the first half of the 15th century the word 'lance' came to designate not an individual by his weapon, but a group of combatants varying in number from four to nine, headed by a man-at-arms. Although most military historians claim that the lance was purely an administrative entity, there seems to be evidence that it could well have served as a tactical unit.

In the Abbeville ordinance each lance was to consist of: one man-at-arms, with a mounted page and a swordsman (*coustillier*); three archers, mounted; and one crossbowman, one handgunner, and one pikeman, on foot. This gives a total for 1,250 lances of 10,000 combatants in all (pages did not fight), divided into 12 companies. It will be noted that the distinction between *chevalier bannerets/bacheliers/écuyers* has been dropped: the army is becoming a professional one, no longer being based on social status, and all men-at-arms are paid the same. The equipment of certain members of the lance is prescribed: the man-at-arms must have a full armour, three horses (two being ridden by the page and swordsman), a war saddle and chamfrain, and must have blue and white plumes on his sallet and chamfrain. He was also issued with a vermilion velvet St. Andrew's cross for his armour, but we are not told how it was to be fixed.

The three mounted archers must each equip themselves with 30 arrows, a bow, a two-handed sword and a dagger. The swordsman must have a spear, a sword and a dagger, and both he and the archers were issued with a blue and white jacket bearing a red St. Andrew's cross.

As stated, the army was organised into 12 companies of 100 lances each: a company of ordinance was commanded by a *conducteur*[1] and the

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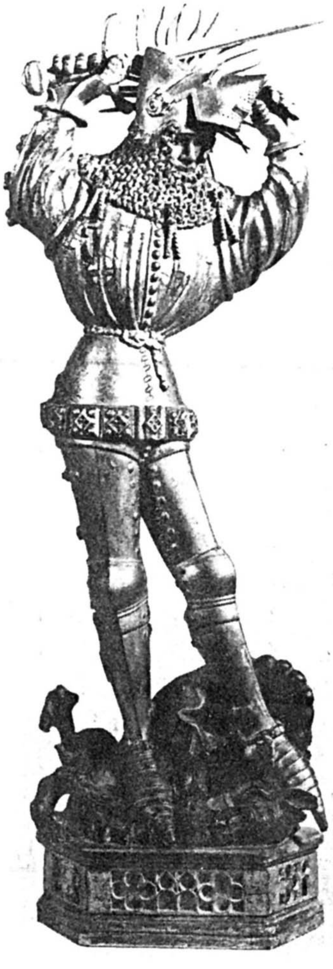
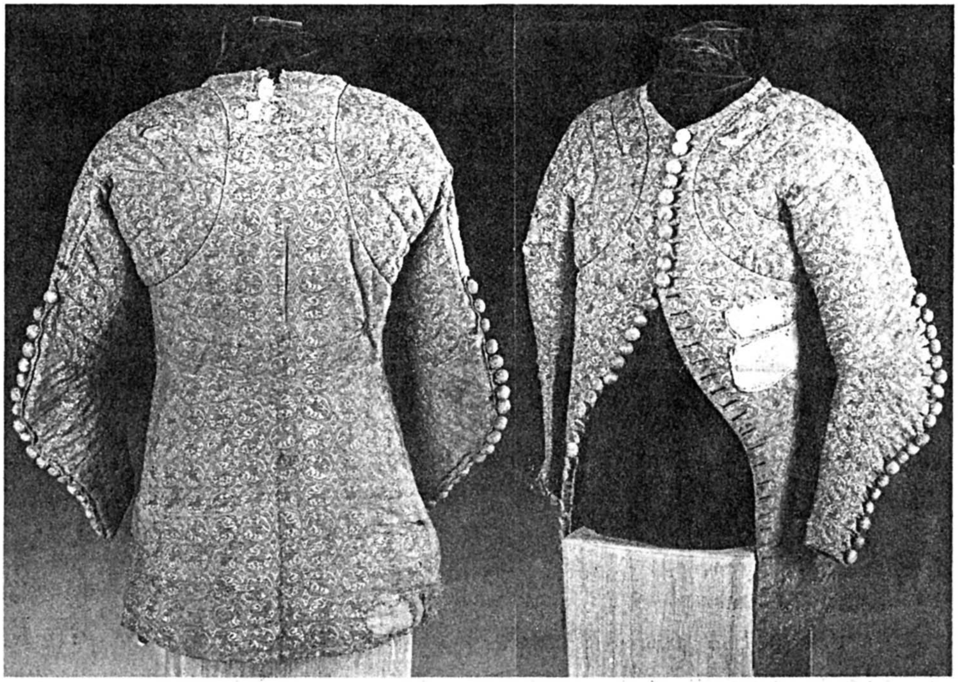
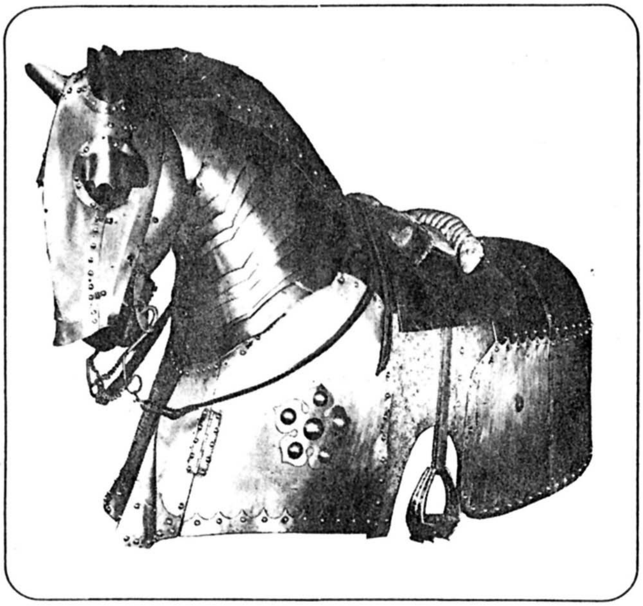
[1] From the Italian *condottiere*, which shows how much Charles was influenced by the Italians: the usual French term was *capitaine*.





(Left) Duke Philip the Bold commissioned a retable, of which this figure of St. George forms part, from Jacques de Baerze, a Flemish wood carver from Ghent active around the end of the 14th century. St George's visored bascinet, by far the most common helmet throughout Europe from c.1380, has a mail aventail which is attached to his *jupon* or *pourpoint*—coat armour—by 'points'. This shape of sword pommel was in common use from c.1350 until the first quarter of the 15th century; but the lance-rest protruding through a cut-out in the *pourpoint* is a very rare feature as early as this. (Above) The *pourpoint* of Charles de Blois, Duke of Brittany, killed at the battle of Auray in 1364. If the buttons were fastened the 'wasp waist' seen in the St. George carving would become apparent. (Musée des Beaux-Arts de Dijon; Musée Historique des Tissus, Lyon)



The earliest surviving complete horse armour, by Pier Innocenzo da Faerno of Milan, c.1450. Horse armour had by this time become quite effective, due to an ever-pressing need to protect one's mount from archery and pike formations. Much horse armour was of mail; and in 1445 Duke Philip the Good ordered a 'steel bard made in the manner of a brigandine'. (Kunsthistorischen Museum, Vienna)

100 lances were divided into tens, each group of ten commanded by a *disenier*. This group of ten lances was itself divided into two unequal *chambres*, six lances commanded by the *disenier* and four commanded by a *chef de chambre*. The chain of command stipulated that the *chef de chambre* was subordinate to the *disenier*, who must obey the *conducteur*. The *conducteur* was under the orders of the commander-in-chief.

Each company also enjoyed the services of a clerk and a trumpeter, and possibly a surgeon and a billeting officer. Salaries were as follows:

Conducteur	100 francs
Disenier	24 francs
Chef de chambre	?
Man-at-arms	15 francs
Mounted archer	5 francs
Handgunner	4 francs
Crossbowman	4 francs
Pikeman	2 patars

Wages were distributed at inspections, which took place every quarter. However, occasions are found where salaries were paid three or even four months in arrears: this does not reflect the state of Charles's treasury, but was common practice in order to encourage potential deserters to remain with the army until the next pay-day.

(2) The ordinance of Bohain en Vermandois: 13 November 1472

Besides elaborating the previous ordinance, that of 1472 called for a slight reduction in the number of troops. There were to be 1,200 men-at-arms each accompanied by a mounted page and swordsman, 3,000 mounted archers, 600 mounted crossbowmen, 2,000 pikemen, 1,000 archers on foot, and 600 handgunners on foot. It may be seen that the composition of the lance was not always the same: however, the organisation of the company and hierarchy remained unchanged, as did the salaries, apart from the pikeman, who now received four francs like the handgunner and crossbowman.

In this ordinance we are informed of the costume and equipment of the three infantrymen:

The handgunner should be equipped with a sleeved mail shirt, a *gorgerin* (mail or plate armour protecting the throat and neck), a sallet and a breastplate. Apart from his gun, he should carry a dagger and a one-handed sword.

The archer should wear a brigandine over a padded jacket, some armoured reinforcement on his forearms, a *gorgerin*, a sallet, and must carry a long sharp dagger, a lead hammer (presumably for planting stakes) and a bow and quiver hanging behind.

The pikeman must wear a sleeved jacket reinforced with plates, and a breastplate. His right arm should be protected by more plate armour, and his left arm by a targe (a small round shield). Since he would need both hands free to wield his weapon, the targe may have been fastened to his arm.

(3) The ordinance of St. Maximin de Trèves: October 1473

This remarkable ordinance is by far the most complete, and involves a total re-organisation of the company in the Italian style. Instead of being divided into groups of ten lances, commanded by a *disenier*, the company is to consist of four squadrons of 25 lances, each squadron led by a *chef d'escadre*. The squadron is subdivided into four *chambres*, each of which is composed of six lances under a *chef de chambre*. The composition of the lance (which is not

Table B: Company Organisation, 1473

	Number in a lance	*16 chambres consisting of*	*4 squadrons consisting of*	*Company*	
Men-at-arms	1	6	25	100	mounted
Swordsmen	1	6	25	100	
Valets	1	6	25	100	
Archers	3	18	75	300	
Crossbowmen	1	6	25	100	on foot
Pikemen	1	6	25	100	
Handgunners	1	6	25	100	
Total	9	54	225	900	

stated) was almost certainly based on the original 1471 ordinance, and a company would have been organised as in Table B.

In practice, the company rarely achieved the necessary effectives, and the missing numbers were sometimes provided from the feudal levies or mercenaries not connected with the ordinances.

After the preamble, the ordinance describes how the *conducteurs* are to apply for their positions in writing, and their subsequent election by the duke, which is to remain in force for no more than a year. *Conducteurs* are responsible for selecting their *chefs d'escadre* and hearing their oath of loyalty to the duke.

The *chefs de chambre* must furnish their superior officer with a list of the names and addresses of each man under their orders. The *chef d'escadre* must similarly provide a list to his *conducteur*, who is to give one copy to the duke, if present on campaign, and keep the other in a safe place: the ordinance suggests he keep it in his hat!

Billeting procedures are set down in detail: the army must wait outside the town while a billeting officer from each company, together with a man-at-arms from each squadron accompanied by three archers, make the necessary arrangements. Soldiers are not to leave their ranks during this time and may not take lodgings other than those allotted to them. Any complaints are to be referred to the *conducteur*.

For prolonged stays, however, men may choose between lodging in a hostel or in private houses, with the consent of the householder in the latter case. Much space is devoted to discipline, and the *conducteurs* and *chefs d'escadre* must assure the good conduct of their men towards the population. A commissary is to be appointed to record any complaints from the civilians and make good any damage, the cost being deducted from the culprit's next pay[1]. The common practice of forcing one's host to go out and buy wine at his own expense must cease forthwith, and victuals are to be paid for at market prices. However, the town is to provide cooking utensils and bedding.

The morning of departure is to be heralded by three trumpet calls. On the first, everyone must pack his baggage; on the second the lances, *chambres* and squadrons must form up; and on the last call, they must assemble in their respective companies. The *conducteur* of each company must carry an ensign of distinctive design and colour. Each *chef d'escadre* must carry a cornet matching his *conducteur's* ensign, but marked in golden lettering respectively 'c', 'cc', 'ccc', 'cccc' for each squadron. Each *chef de chambre* is to wear a bannerole on his sallet, again matching his company's ensign, bearing the number of c's corresponding to his squadron, and designating the number of his *chambre*. Thus $\frac{\text{cccc}}{\text{iii}}$ indicates the third *chambre* of the fourth

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[1] It is illustrative to note that in earlier French orders concerning billeting, heavy punishments were provided for billeting officers who accepted bribes from townspeople not to billet men in their property, and also substantial fines for townspeople who purposely made their lodgings uninhabitable, by breaking furniture etc. It seemed to be common opinion that any civil possessions used by the armies, from beds to utensils, were as good as lost.

Some helmets of types that would have been in common use in the Burgundian armies during this period.
(A) Visored bascinet, c.1390. Perhaps the most common helmet during the second half of the 14th century, the bascinet was of pointed construction, designed to deflect sword blows. The holes around the lower edge were for fixing the aventail, a mail collar worn over thick, quilted padding. The bascinet with aventail weighed arond 12lbs. (Swiss National Museum, Zurich)
(B & C) Two 15th-century barbutes; a uniquely Italian helmet, the barbute is found in use from about 1430 and remained popular until the end of the century. (Wallace Collection, London)
(D) Rondel armet, Netherlandish or English, c.1475. The armet probably originated in Italy; this superb example has a rondel at the back, the purpose of which was most likely to protect the leather strap fixing another piece of armour round the neck. The helmet weighs 9½lbs. (Metropolitan Museum of Art, New York)
(E, F & G) *Chapels-de-fer*—**'kettle hats'. Possibly the most common helmet for the ordinary soldier (although E, probably Burgundian c.1465, is a magnificent example of metalwork), kettle hats of a kind are still worn by soldiers of many modern armies. F, with its strange scalloped brim, is French or Burgundian, c.1460; it is a reminder that to dismiss all contemporary illustrations of 'exotic' armour as fantastic is unwise. G was found in the lake of Morat, and is most likely associated with the battle of 1476. (Metropolitan Museum of Art, New York)**
(H) French or Burgundian sallet, c.1480. One of the most popular helmets for men-at-arms and footsoldiers alike, the sallet could have either a visor, as here, or merely a slit cut into the skull. (Metropolitan Museum of Art, New York)

squadron of the company. On the march everyone must keep together and carefully follow his ensign or cornet. Anyone leaving his rank to forage or pillage is to be severely punished, by loss of wages in peacetime, by loss of equipment in time of war, and if in enemy territory, by death. Deserters are of course treated most severely; and when a desertion is reported, marshals are to be sent to the offender's place of residence to await and arrest him. The army must march for two days, progressing at least five leagues daily, and may rest on the third day only if necessary.

Any man requiring leave must apply in writing to the man-at-arms under whose orders he is, giving his reasons and the length of time required. If his request seems reasonable, the man-at-arms should present his case to the *conducteur* for his signature. The request is handed to the *chef d'escadre* for a further signature, then to the *chef de chambre* who must sign yet again, then to the relevant man-at-arms who must also sign it, and finally give it back to the original applicant. Bureaucracy certainly abounded!

In peacetime, no more than five men-at-arms and 15 other soldiers from a squadron may take leave at any one time, and in time of war this is further restricted to two men-at-arms and six soldiers. Moreover, in order to discourage desertion, a man-at-arms must leave his best horses behind him, and a soldier all his fighting equipment. Any overstaying of leave is punished by the offender's loss of wages for an equal time to that of his unauthorised absence.

In order to prevent squabbles, the sharing of booty is laid down: the *conducteurs* are entitled to five per cent of the value of booty seized by their companies, the *chefs d'escadre* to two-and-a-half per cent of that seized by their squadrons, and the *chef de chambre* to a quarter of that taken by his *chambre*, but only if he was present when it was acquired.

Inspections of men and equipment are to be held every three months in the presence of commissaries and notaries. The borrowing or substitution of missing equipment (a regular practice even then, judging from legal records) is to be severely punished, and the offending equipment confiscated, half its value being paid to the accuser and half to the inspecting commissary. Pay is distributed at each inspection as follows:

Man-at-arms	18 francs per month
Chef d'escadre	30 pietres + 3 francs per month
Archers	3 sols per day
Mounted crossbowman	

In case of death, wages due up to the time of death are to be made to the executors of the deceased.

When there is time, or when garrisoned, the *conducteurs* and *chefs d'escadre* and *de chambre* should take a detachment of their men-at-arms into the fields, with or without armour, and train them to charge with the lance, to withdraw on command, to rally while covering one another, and to withstand a charge. The archers are to practice dismounting and shooting their bows, to manoeuvre their horses while on foot, and to advance rapidly without breaking rank. The pikemen must be made to advance in front of the archers and to kneel at the latters' command so that the archers may shoot over their heads. In this way, the ordinance declares, the pikemen will be near enough the enemy to charge them if they break rank. The archers should also practice fighting back to back or in formation, always surrounded by pikemen to protect them from an enemy charge. It is this detailed tactical drill which seems to suggest that the lance was not

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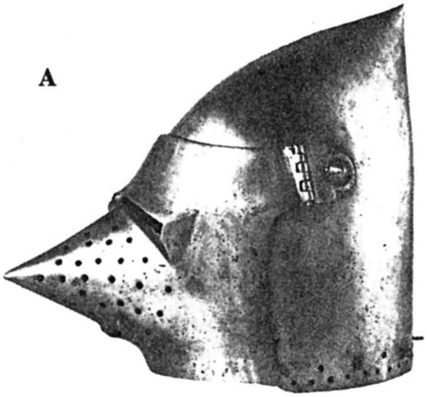

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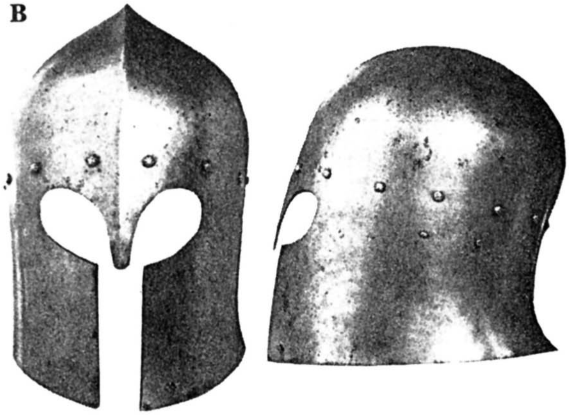

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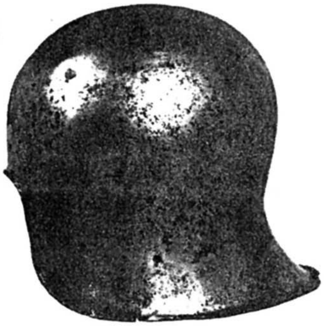

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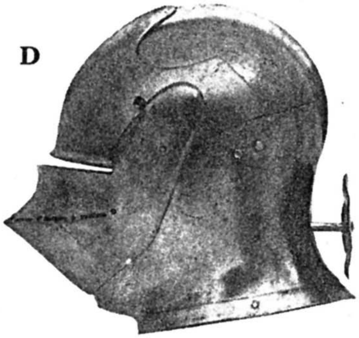

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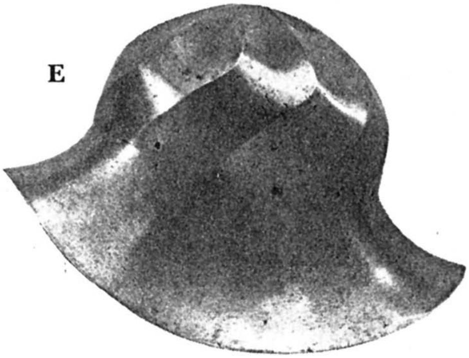

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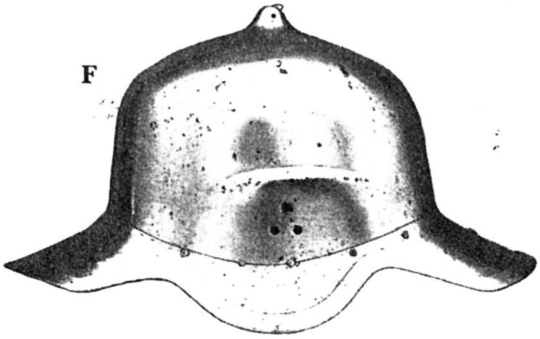

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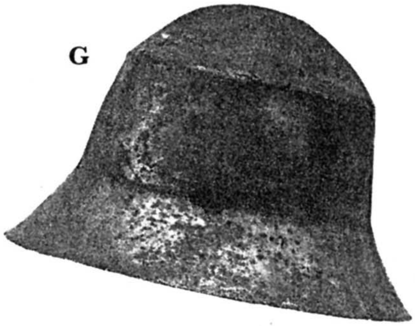

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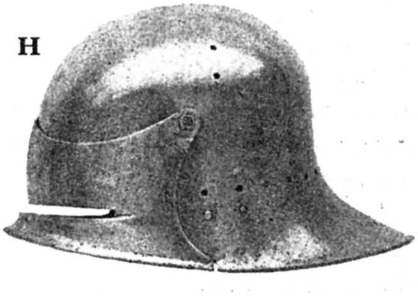

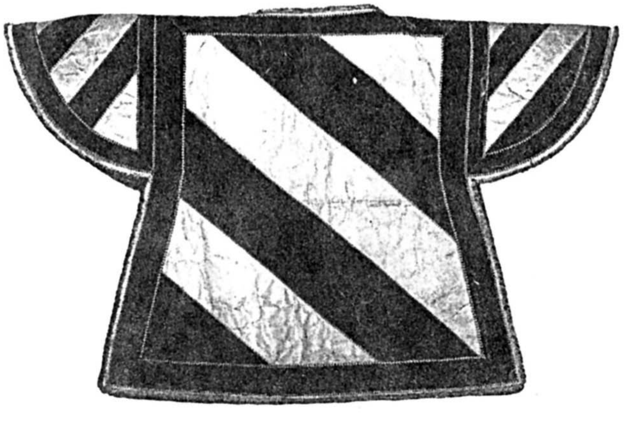

Tabard of the Herald of the Duchy of Burgundy, in blue and gold with a red border. Each region of the Burgundian state had its own herald. Apart from organising tournaments and prescribing chivalric ritual, they played an important part in medieval warfare: setting out international rules of warfare, summoning the surrender of towns, and negotiating with the enemy. Towards the end of the 15th century the role of heralds declined, and non-combatants such as musicians often took over their duties. (Kunsthistorischen Museum, Vienna)

only an administrative unit, but could perfectly well be used on the field.

The presence of women in the army must be controlled, and the ordinance deplores the way in which some men maintain women as if they were their wives, which, we are told, leads to great argument and inconvenience. No more than 30 women are to be allowed to a company, and no man must take one as his own[1]. There is to be no swearing, bad language or dicing.

The equipment of most of the members of the lance is given in detail. The man-at-arms must wear a full breastplate, a fauld (a skirt of metal hoops), a sallet, barbute or armet surmounted by a plume. He must be armed with a long, light lance, a sharp knife hanging on the left side of his saddle, and a mace on the right. One of his three horses must be capable of charging and wear a plumed chamfrain and bard; and the other two, for his page and *coustillier* (swordsman), must have cost at least 30 *écus* and 20 *écus* respectively. The *coustillier* must wear a brigandine or a split corselet 'in the German manner', a gorget (mail or plate collar), tassets (*braies d'acier*, literally 'steel breeches', which could also imply mail), vambraces (armour for the forearm), and gauntlets. He must be equipped with a light lance, that may be lowered for charging if necessary—the Burgundians interspersed their *coustilliers* among their men-at-arms on occasions, in order to deceive the enemy as to their real numbers, which could imply that there was not much apparent difference in equipment between them, at least from a distance. He must also have a good sword and a long double-edged dagger.

The mounted archer must possess a horse worth not less than six francs, and should wear a visorless sallet, a gorget, a brigandine or a sleeveless mail shirt under a ten-layered jack. He should carry a long, sharp two-handed sword and a double-edged dagger; his doublet must not have the fashionable puffed-out upper sleeves and his forearms should be armoured in such a way as not to impede his shooting. Knee-length boots should be worn with short spurs and without pointed toes, in order to let him walk freely. Mounted crossbowmen must wear a brigandine or corselet, as the *coustillier*, light armour on the arms, a gorget, sallet, and the same spurs as the mounted archers. Their horses must not be worth less than ten *écus*.

Artillery

The word 'artillery' originally embraced any engine capable of shooting projectiles, and included giant crossbows, slings and catapults (used in siege work) as well as cannon and guns.

The first mention of firearms in Europe occurs at the beginning of the 14th century, and gunpowder was probably used in battle from around 1320. Guns were therefore still something of an innovation when Philip the Bold took possession of the duchy of Burgundy in 1364: the inventory of the duchy's arsenal in 1362 mentions *deux quanons gitter garroz* (two guns for shooting bolts). Arrows were commonly used as projectiles in guns until the 16th century, and among the inventory of weapons used in a local Burgundian siege in 1368 are listed: two cannon, 5½lbs powder, 14 quarrels, and 12 lead bullets.

Philip the Bold was well aware of the formidable artillery of the Flemish (before they formed part of the Burgundian state), and in 1368 commissioned the two brothers Jacques and Roland of Majorca, gun founders of international repute, to cast a dozen large-calibre cannon. The brothers remained in the duke's service until about 1390, and regularly followed him on campaign. There is an account of the manufacture of one of their guns in the archives at Dijon: started on 12 October 1377 and finished on 9 January 1378, it took the master founder and eight smiths 61 working days to complete. It threw a ball of 450lbs, but did not resist a primary proof and had to be reinforced with five iron rings: cost, £223 8*s* 0*d*.

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[1] This rule was obviously overlooked in 1476 when the Swiss, looting Charles the Bold's camp after defeating him at Grandson, apparently found (to the pleasure of some, who are vividly depicted in the Swiss chronicles with their new friends), 2,000 *filles de joie*, far above the proportion the ordinance would have allowed for his 11,000 strong army.

The Burgundian dukes all attached a great importance to this extremely expensive novelty and spent colossal sums of money on increasing their arsenals, so that Charles the Bold at the end of his reign could boast of having the biggest and most advanced artillery park in Europe. Olivier de la Marche mentions '300 cannon not including *arquebuses* and culverins without number', and the Swiss are supposed to have captured some 200 guns at the battle of Grandson in 1476. Unfortunately, information on artillery at the end of the Valois dynasty is very scarce, as most of the documents and archives of Charles the Bold's reign disappeared after his death, on the annexation of Burgundy to France.

The ducal accounts at Dijon give us an extraordinary insight into the transport and operation of artillery, and the dangers and setbacks with which it was fraught. In September 1409 Duke John the Fearless ordered a siege to be carried out against the castle of Vellexon, which belonged to Henri de Blamont, a Lorraine nobleman who had for some time been encroaching on Burgundian territory. First a palisade was constructed all round the castle and the besiegers were issued with armbands bearing the word 'dijon'. All the cannon used were provided with large wooden shields to protect their operators from defenders on the ramparts. During the first days of the siege many guns exploded, which was blamed on the inexperience of the gunners. More artillery was brought in, borrowed from towns all over the duchy, and experienced German gunners were sent for from Basle and the Rhine.

In spite of this there was a further loss of cannon, and the archives go on to describe how two of the largest bombards were sent to Auxonne for repair—a distance of nearly 40 road miles (62km). Two hundred men were needed to lift the biggest bombard from its mould, and the two guns were transported by river, all the locks being broken down for greater speed. They were back at Vellexon in working order, still hot from the forge, three weeks later, and we are given an account of their proving: four shots were to be fired, two at the expense of the repairers and two to be paid for by the duke. If the guns burst (which they did not), the casters were to be fined 100 *écus*.

As the ready-prepared gunpowder supplied was thought to be responsible for the bursting of so many guns, 800lbs of saltpetre and 500lbs of sulphur were ordered from Paris; ten men were then employed for four days to mix the ingredients. Many enlightening events are described: the bombards continually split the wooden barriers fixed behind them to take the recoil, until these were reinforced with iron straps. Another bombard had to have its vent drilled out as the red-hot iron rod used to fire it had broken off inside. Special canvas aprons had to be supplied to the gunners, who complained that their legs were being burned by the back-fire from the vents of the bombards.

Little by little the besiegers advanced towards the castle walls under cover of their wooden shelters, which were often knocked over by opposing artillery. The impression given is one of immense industry: carpenters, stonemasons (18 masons were continually at work making cannon balls: from 2 October 1409 to 2 January 1410 they made 1,600 balls), carters, artisans, workmen, miners and farriers, quite apart from the rank-and-file soldiers, all in a continuous flurry of activity.

In spite of the constant battering of the bombards (one of which threw an 850lb ball), catapults and slings, and although interior buildings were effectively demolished when hit, little impression was made on the outer walls of Vellexon, and any small damage inflicted was immediately repaired by the defenders. In the end the castle fell by mining, on 22 January 1410, four months after the start of the siege. The accounts tell us that as soon as the castles towers started to fall, all the disgruntled workmen packed their tools and made off without so much as waiting for their wages, so long had the siege dragged on. The castle was razed to the ground with the help of local masons, but we are not told of the defenders' fate.

The author has visited Vellexon: the site of the castle is obvious from the terrain, but apart from a dubious and decaying watch tower now forming part of a garage, nothing remains but a few patches of broken stones. The villagers were all unaware that there had ever been a castle high above their cottages.

Types of Cannon:

It is very difficult to classify by name the types of gun in use during the period of this book: there seem to have been no rules laid down for gun makers concerning the dimension or calibre of pieces, and names are used indiscriminately. The following brief list is based on contemporary appellations of the guns described.

Bombard

These were the large-calibre guns used for siegework. Sometimes made in two pieces, breech and barrel, they were assembled *in situ*. Some were huge: we are told of bombards shooting projectiles weighing from 300–950lbs. One used 36lbs of gunpowder to shoot a 320lb stone ball, and another needed 70lbs of powder to throw a 400lb stone. They were made either of forged hoop and stave construction (rather like a cylindrical barrel), or cast from bronze.

The Ghent bombard, one of the few remaining Burgundian guns of this type, and possibly used at the siege of Audenarde in 1382, is constructed from 32 iron staves reinforced with 41 hoops. Eighteen feet long, it has a calibre of 638mm, and used 140lbs of gunpowder to shoot a projectile weighing 600lbs.

In use, the bombard was placed in a shallow trench of its own length and butted against massive timber blocks in front of heavy piles driven deep into the ground. As we have seen in the account of the siege of Vellexon, these timbers were prone to split and often had to be replaced after each shot. The recoil usually put the bombard out of alignment, and it was necessary to reposition it with levers and cranes. These disadvantages were later eliminated by the use of a huge mass of lead (known as an *oreiller* or pillow) between the breech of the gun and the timber blocks, and by restraining lateral movement of the bombard by confining it within heavy timber walls on either side. It was then also possible to vary the elevation by supporting the muzzle on stakes inserted through the walls.

The progress made in the casting of smaller pieces from the middle of the 15th century caused bombards, with all the trouble and expense that their transport entailed, to be increasingly neglected, and most were broken up and recast into more manageable guns.

Each bombard was provided with its own waggon, or two if the gun was large and had a separate breech. The waggons were surmounted by the ducal pennons, and also carried the bombard's lifting apparatus if small; otherwise a third waggon was provided for the crane. The huge '*bombarde de bourgogne*', together with its supply of powder, balls and lifting apparatus, was transported from Dijon to besiege Avallon in 1433, taking eight days for the 90-mile détour via Beaune; it required over 100 horses, six carts and up to 70 people.

Veuglaire

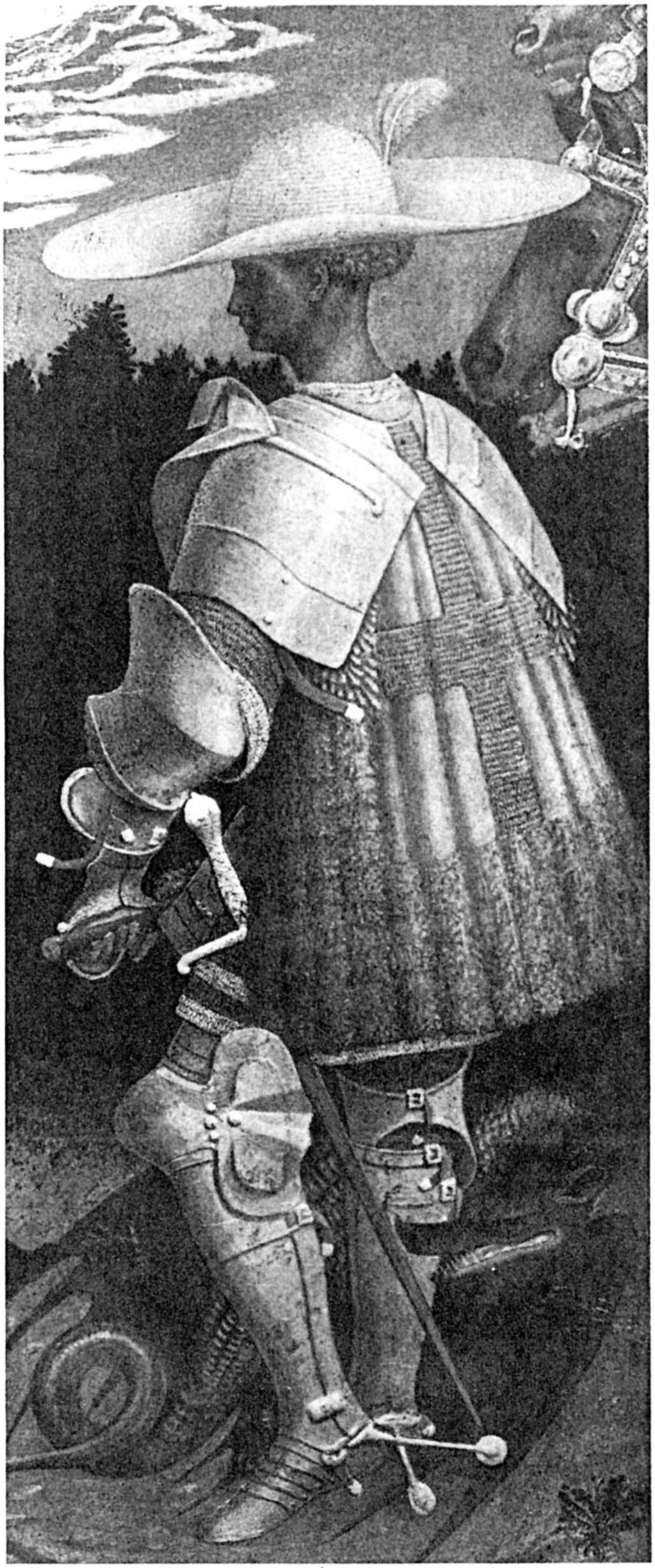
Veuglaires, or sometimes *courtauts*, were smaller than the bombards; they probably originated in Flanders and first appear in the Burgundian archives in 1420. Like the bombards, they were used in siege work, but were not at first powerful enough to be used against castle walls; they were probably useful for demolishing light structures such as hoardings.

Guns described as *veuglaires* were anything between three and ten feet long with a calibre of from two to ten inches. They were usually stocked in a massive piece of timber placed on huge trestles, but the small ones appear frequently to have been mounted on *ribaudequins*, which were no more than waggons bearing several light guns loaded with shot. Some of the smaller *veuglaires* were breech-loaders.

Couleuvrine

These guns originated in Germany, and they are first mentioned in Burgundian documents at the siege of Compiègne in 1430, when Duke Philip the Good purchased some from German casters and arranged for German gunners to operate them. They seem to have been from two to four feet long with a calibre of one to two inches and were made either in one piece or supplied with three or four interchangeable breeches. One existing *couleuvrine* shot 4cm lead balls weighing 360gms, and another

St. George, by Antonio Pisano-'Pisanello' (c.1395 1455). The saint wears a purely Italian armour of the mid-15th century. Note the great pauldrons worn over his peculiar coat armour, almost overlapping at the back; and the stop-rib to prevent a lance glancing up on to the neck. His mail shirt is decorated with bands of 'latten' or gilt links at the sleeves and lower edge. We may presume that his helmet is being carried by a page, so that he may wear his rather becoming straw hat. (Reproduced by courtesy of the Trustees, National Gallery, London)



fired 5cm balls weighing 700gms.

They were stocked in wood, large ones being placed on trestles, small ones hand-held, and were frequently mounted on *ribaudequins*. In Charles the Bold's reign heavy *couleuvrines* had hooks on the end of the barrel (*couleuvrines à croc*) to take the recoil when shooting from ramparts. They were later known as *arquebuses*.

Serpentine

These guns, ideal for the field, appear c.1430. More powerful than *couleuvrines*, they were nonetheless very mobile, and were usually stocked and mounted on carriages with iron-tyred wheels. They were frequently equipped with elevating devices, and were usually breechloading. From three and a half to seven feet long, they had a calibre of between two and six inches.

Couleuvrines à Main (Handguns)

Not to be confused with the true *couleuvrine*, the medieval handgun is the ancestor of the later military musket and rifle. They occur infrequently up to about 1360, but in 1411 Duke John the Good possessed no less than 4,000, and Charles the Bold equipped one-third of his infantry with them.

In early times handguns were constructed as small-scale bombards with short, squat barrels. The pre-1399 Tannenberg gun in Nuremberg has a barrel length of 165mm with a bore of 14.5mm, while a later 15th-century gun in Nuremberg has a barrel 375mm long with a bore of 21mm. The longer barrel allowed more time for the powder to burn completely before the bullet left the muzzle.

Early handguns had no true stock, but were set on the end of a long wooden stave which was held under the arm while the smouldering match was applied to the vent. At the start of the 15th century two innovations, which may have been simultaneous, were to transform this erratic mini-cannon into the dominant weapon of every European army up to the present time: the stock and the serpentine lock. The serpentine lock at last enabled the shooter to hold the gun with both hands and concentrate on his aim rather than worrying about placing his burning match square on to the vent; and the stock allowed him to place the gun on his shoulder and look down the line of the barrel. By the end of the 15th century handguns were starting to take on a shape that would be familiar to anyone nowadays.

Lead, iron or stone bullets were used, but cast iron bullets were reputed for their armour-piercing capabilities in the 15th century. Recent tests using simulated 15th century handguns show that iron bullets were quite capable of piercing one-tenth of an inch of mild steel plate; lead bullets fared far less well.

Organisation

In early times, all artillery was under the supervision of regional officers called *artilleurs du Duc*, whose role was partly administrative, partly technical. They were responsible for the repair and maintenance of guns, and for supplying and organising the fabrication of powder and cannonballs. By the middle of Philip the Bold's reign, however, the increasing number of guns had led to the creation of a special breed of technicians, the *Maîtres des Canons*, who rapidly became among the most sought-after and well-paid men in Europe. Their independence and tendency to serve the master who paid most led to the creation of a new civil post in 1415—the *Maître de l'Artillerie*, who was solely responsible for artillery in the whole state of Burgundy. This became a most powerful position, and Olivier de la Marche tells us that 'the *Maître de l'Artillerie* has such authority that he must be obeyed as if he were a prince'. This post endured until 1477.

Up to the end of John the Fearless' reign the *Maître de l'Artillerie* was able to perform his function alone. But widespread war, with Burgundian troops fighting from the Alps to Holland and requiring the acquisition of artillery and munitions on the spot, called for a new group called the *Controleurs de l'Artillerie*. Attached to any substantial group of troops, the *Controleurs de l'Artillerie* replaced the *Maître de l'Artillerie* for all administrative purposes. Their duties included the examination of purchases, inventories of local arsenals, assembling artillery for expeditions, and, after each campaign, listing all artillery captured or lost.

After the demise of the *Maître des Canons*, artillery technicians were naturally still required, but these were simply artisans who went under the name of *canonniers*. Their duties were to maintain and repair the guns, and to make powder. Their numbers gradually increased, until in Charles the Bold's reign there was one *canonnier* for each *veuglaire* or *serpentine*.

Powder and Munition

Gunpowder was probably made of six parts saltpetre, two of charcoal and one of sulphur according to the recipe of Albertus Magnus (d.1280). In early times these ingredients were simply mixed together for use, usually *in situ*, as during a voyage the components tended to separate out, with the heaviest sinking to the bottom. The main improvement in powder was the introduction of wet-mixed powder, which probably came about at the end of the 14th century due to the necessity of mixing the components when damp to lessen the risk of ignition. The resulting very intimate mixture led to a considerable improvement in the performance of guns.

Gunpowder was at first extremely expensive owing to the difficulty of manufacturing saltpetre. The price of a pound of powder in England in 1346 was 18d, but by 1461 it had fallen to 5d thanks to the late-14th century device of extracting saltpetre from controlled nitre beds—huge compost heaps of earth, dung, urine and lime (the most favoured urine was that of wine-drinkers, and it is said that monasteries contributed copiously to the production of high quality gunpowder!). However, the prevalence of superstitious belief in alchemy and magic commonly led to the adulteration of gunpowder with exotic products, usually mercury salts, arsenic and amber.

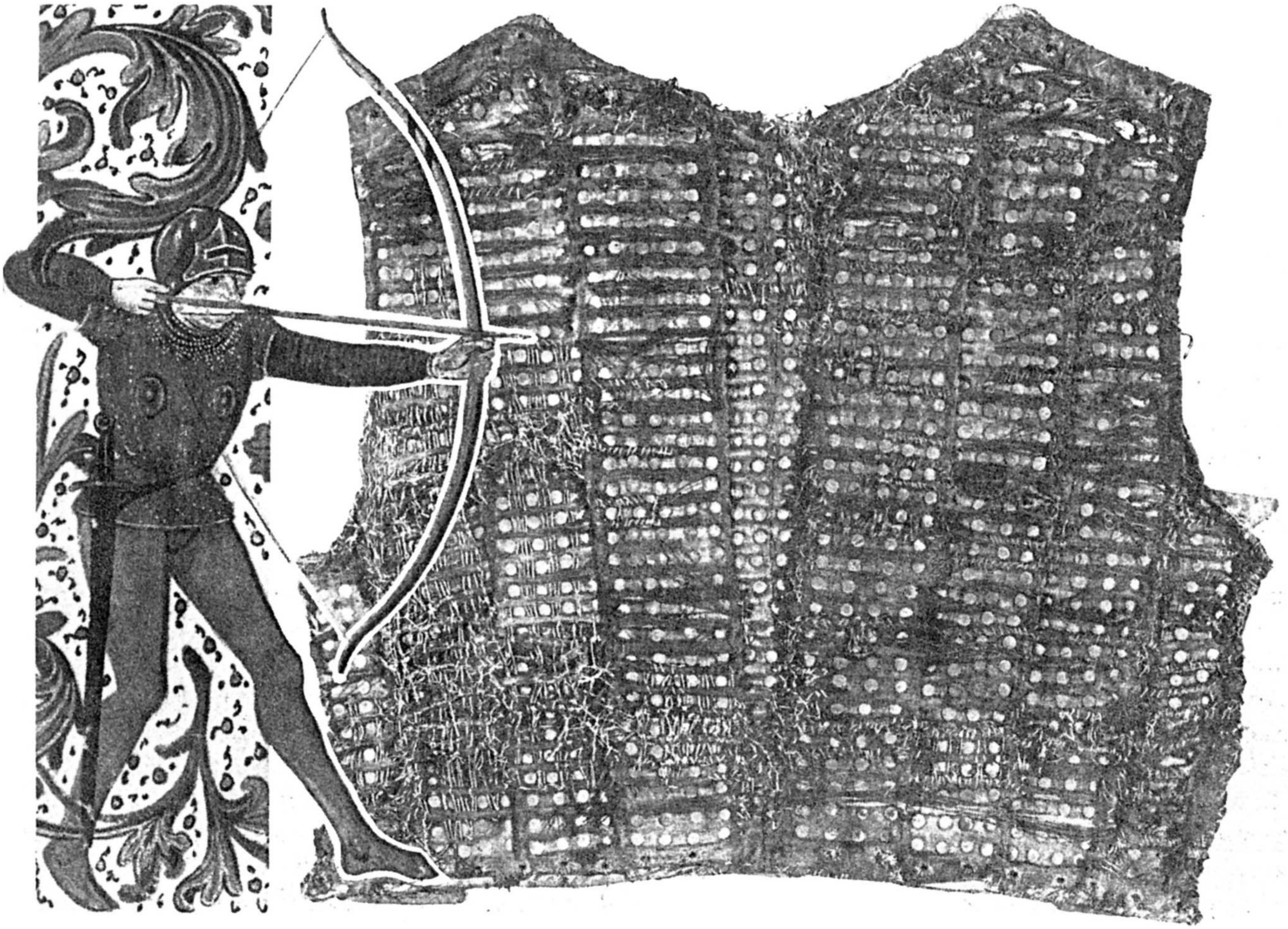
The quantities of powder used are interesting: at the siege of Calais in 1436 the Burgundian army used 10,000lbs of sulphur and saltpetre in 73 days, giving an average consumption of 160lbs per day. In the middle of the 15th century it seems that most campaign guns were supplied with enough powder for 100–200 shots.

The projectiles shot by guns were at first of stone: masons were employed for cutting these balls and were considered among the most important of craftsmen, being paid in 1399 the same wages as a man-at-arms. A mason took at least half a day to make one cannon ball, using a template cut in a wooden board to the exact bore of the gun. Burgundian documents do not mention the use of lead balls until 1443, and iron balls first appear only in 1474.

Something of the rate of artillery fire may be judged from contemporary accounts. During the siege of Maastricht, from 24 November 1407 to 7 January 1408, the town was bombarded with 1,514 large stone balls, an average of 30 a day. At Calais in 1443 the bombards were fired only once a day. At the battle of Brustem, the Liège rebels' artillery fired 70 shots[1]. Incendiary missiles were in common use: at the siege of Vellexon quantities of camphor were ordered, and with the use of pitch, sulphur and alcohol such projectiles were probably quite effective. John the Fearless, fighting the Liège rebels in 1408, carried 300 incendiary rockets. Townspeople covered their roofs with earth as a protection from these missiles.

The Army in the Field

Where an army could not be billeted in a town, camps were set up, and 10,000 or 12,000 men in a camp must have required colossal organisation. The chronicler Chastellain described the Burgundian camp at Eclusier Vaux in 1468: 'It was the



This archer, from a 15th century northern Burgundian manuscript, wears a visored sallet, a mail collar and a brigandine. Brigandines, of which a surviving example is shown here, consisted of numerous small metal plates attached by rivets to thick fabric. Lavish material such as velvet was used as the outer covering on superior examples, and the rivet heads were often gilded. (Bibliothèque Nationale, Paris, and Musée de l'Armée, Paris)

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[1] This is inconsistent, however, with another contemporary report giving the number of guns in the Liègeois' hands as one hundred.

most splendid sight in the world, and so well organised . . . It looked like a great city, with rows of tents forming long streets and crossroads, large squares for assemblies, and markets where the workmen and merchants gathered with their goods . . . with taverns and entertainment just like in Paris; and the walls were made from waggons so well fortified and equipped and full of armed defenders that no-one would have dared come near.'

When the camp was raised the men-at-arms would be warned of the departure by two trumpet calls; on the first call, horses were saddled, and on the second call they would mount their horses. Armies generally marched by day; there are occasional instances of night marching in order to surprise the enemy, but in spite of great precautions, men were sometimes lost. Main roads were used where possible, but these were often too narrow, and troops marched through the bordering fields.

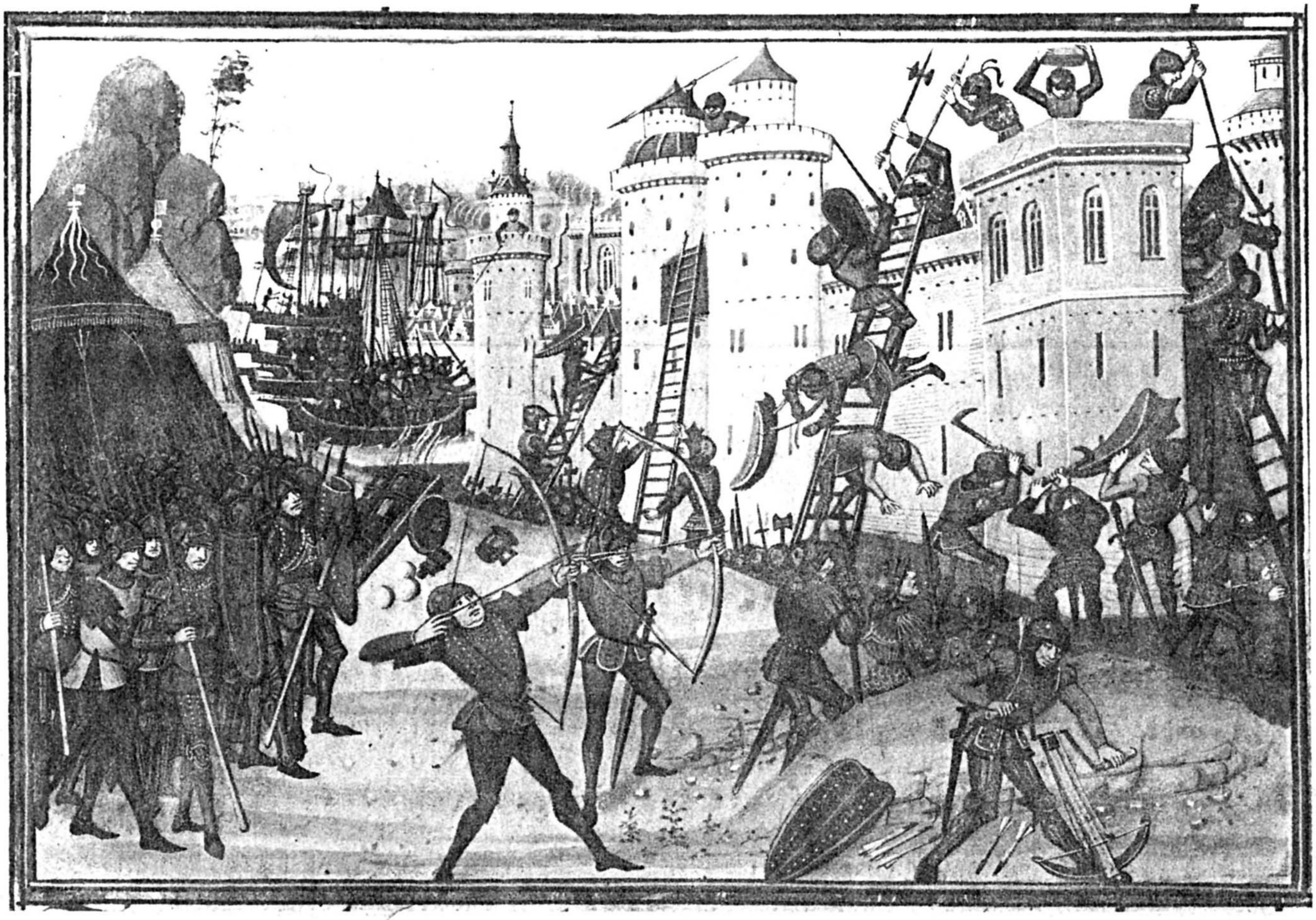
The siege of a town, 15th century. Every conventional method of siegecraft is illustrated here: artillery, siege-ladders, and an abortive attempt at mining the corner tower in the foreground. Miners would normally have been strongly covered by both artillery fire and wooden defences, which would forestall their sorry situation in this picture. The main besieging army advances on the left, its dismounted men-at-arms to the fore, while a crossbowman in the foreground draws his composite weapon with a windlass; note his next arrow characteristically stuck down the back of his neck, and the rondel dagger slung at his waist. (Bibliothèque Royale Albert 1er, Brussels)

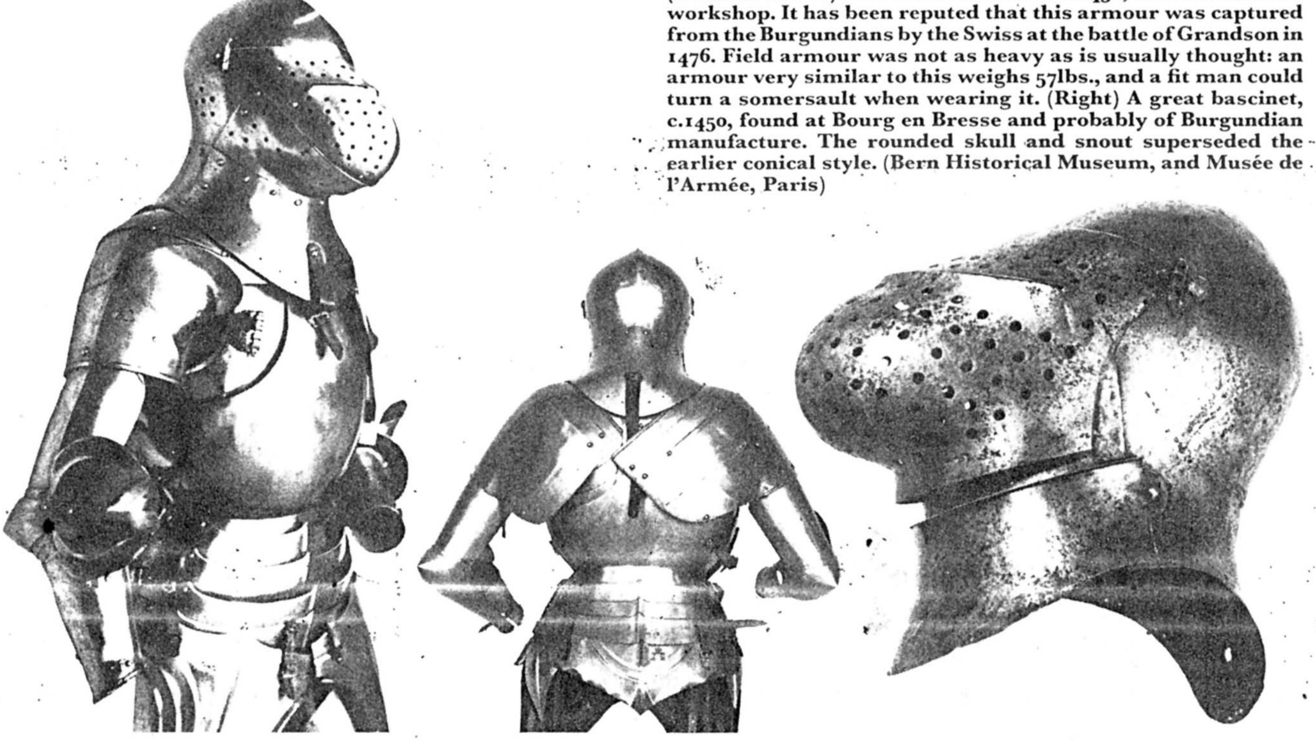
Unless a battle was imminent men-at-arms wore light clothing on the march, leaving their armour with their pages. In 1467 the Lords of Brabant marching on Malines wore their mail shirts, while their helmets and part of their armour were worn by pages.

The usual order of march was that adopted by the French and English during the entire period dealt with in this book. A typical order consisted of:

(1) A detachment of scouts from the vanguard, who obtained information on the conditions ahead, and on the enemy if they were nearby. They would sometimes be accompanied by a few men-at-arms, and in 1466 during the march to Dinant the Marshal of Burgundy, chief of the army, travelled with them.

(2) The vanguard, composed of:





(Left and centre) An Italian armour of c.1450, from a Milanese workshop. It has been reputed that this armour was captured from the Burgundians by the Swiss at the battle of Grandson in 1476. Field armour was not as heavy as is usually thought: an armour very similar to this weighs 57lbs., and a fit man could turn a somersault when wearing it. (Right) A great bascinet, c.1450, found at Bourg en Bresse and probably of Burgundian manufacture. The rounded skull and snout superseded the earlier conical style. (Bern Historical Museum, and Musée de l'Armée, Paris)

(a) a detachment of forerunners: seven or eight lances.
(b) the main vanguard: up to about 30 lances and mounted archers commanded by a high-ranking officer, and accompanied by civil officials and heralds who would take messages to towns ahead, or demand the surrender of castles and fortified cities.
(c) workmen under the orders of the Master of Artillery, whose task was to cut down fences and gates, level ditches, and facilitate the passage of the main army.
(3) The main army, divided into between one and eight 'battles', each of 1,500–2,000 men. In each battle the archers, mounted or on foot, together with the infantry, preceded the men-at-arms. Interspersed among the 'battles', or sometimes with the vanguard, were the light field guns, mostly serpentines: one of the first reactions in case of attack would be to assemble and mount these guns.
(4) The artillery and waggon train—though these would sometimes travel along with the main army, protected in enemy territory by infantry in front and horsemen on either side. In rough terrain, or on narrow paths these waggons normally followed behind, as a broken axle or wheel would have hindered the army's progress.
The usual order was: (a) the heavy artillery waggons; (b) waggons transporting the equipment of the vanguard; (c) waggons transporting the equipment of the duke and his household; (d) merchants' waggons.

The duke (or the Marshal of Burgundy in his absence) commanded and led the main army. The Marshal of Burgundy led the vanguard, while the Master of Artillery commanded the artillery, waggon train and workforce. The merchants' waggons were under the orders of an official called the *prévost des maréchaux*.

Due to the nature of the terrain that Burgundian armies usually encountered, the crossing of rivers was a most important and sometimes perilous operation. Existing bridges were of course used wherever possible, and sometimes the army made long detours searching for bridges, which had often been demolished by the enemy. Where no bridges were available, it was necessary to construct one. A good example is the crossing of the River Seine at Moret on 4 August 1465. The local bridges had been destroyed on the orders of the king of France, and a crossing-place was chosen at a point where there was a small island. The enemy flanked the surrounding hills on either side of the river; and although they were in fact few, and had no artillery, the count of Charolais (soon to become Duke Charles the Bold), who was in charge of the operation, believed their numbers to be far greater than they really were. He had serpentines and a *veuglaire* brought up, and opened fire on the enemy; we are informed that he used three barrels of powder, 600lbs of lead shot and 32 nine-inch stones for the *veuglaire*. Meanwhile seven or eight small leather boats were unloaded from the waggons, together with material for constructing barrels, cords and levers. The coopers set to work immediately making barrels, while one leather boat filled with archers made for the island under the covering fire of the artillery. The archers then rowed to the opposite bank, where they prepared the ground for a bridgehead while workmen came over in the remaining boats. The double bridge construction could then be carried out by the taskforce under the protection of the archers; and in two days the bridges, made of barrels and planks, were finished.

Military Tactics

It is only recently that it has become possible to speak of medieval military tactics, and it is still dangerous ground. Most historians used to stress the utter confusion of medieval battles, and it is certain that there were frequent occurrences of these combats of rabble, where any chance of single combat with an adversary worthy of one's rank was sought out, often to the detriment of fellow-combatants, and where the greatest preoccupation was the seizing of booty and the capture of prisoners for individual ransom. But it is becoming clear that medieval armies were not quite so disorganised as has been claimed: it is as dangerous to over-dramatise the confusion and lack of discipline of a battle as it is to analyse and reconstruct the fighting in order to 'discover' a plan of tactics that was possibly never dreamed of by the armies themselves.

Bearing this in mind, there is evidence of care taken before a battle to instruct the troops on the tactics and procedure to be followed. Whether this occurred before every fixed combat is unsure, but we are certainly fortunate in that one of the earliest known plans of battle has survived. Duke John the Fearless, expecting an attack from the French, issued orders at Barsailles near Paris in September 1417: the Marshal of Burgundy was to take the vanguard ahead to reconnoitre, and then report back to Duke John. The orders stress that should the French take up position outside Paris, they must on no account be attacked. If the enemy should attack, however, the vanguard, two wings of archers and crossbowmen, and the main army should all dismount. The main army, consisting of 1,000 men-at-arms, should stand to one side of the vanguard if the terrain was wide enough, otherwise it should take up position 50 to 60 paces behind. A bowshot behind was to stand the rearguard, consisting of 400 mounted men-at-arms and 300 mounted bowmen, who would perform the vital task of pursuing the enemy in case of victory, and preventing their regrouping. Finally, the baggage train was to be organised into a sort of fortified camp behind all the action.

If the typical Burgundian battle exists, it is best illustrated by the battle of Brustem, fought against the Liège rebels on 28 October 1467. The Burgundian army was besieging the town of St. Trond, when a relief force from Liège installed themselves in Brustem, a village some two miles to the south-east. Duke Charles decided to attack the Liègeois. Here again we have an example of plans being drawn up: Charles (who had inherited his dukedom only some months previously) worked out his tactics the evening before the battle, and the next morning rode round his troops giving them instructions. Leaving 500 English archers to carry on the siege at St. Trond, he took up the following positions:

The vanguard and artillery were set up very near to the village, and since the terrain was too irregular for cavalry charges, both the men-at-arms and archers dismounted.

The vanguard was flanked on both sides by 1,200 mounted men-at-arms who were ordered to (a) attack the men of Liège if they came out from their entrenchments in the village on to ground flat enough for a cavalry charge; (b) ride back to St. Trond to assist the English archers in case the besieged rebels made a sortie; or (c) pursue the defeated Liègeois and prevent their regrouping.

Behind the vanguard stood the duke with a reserve of 800 mounted men-at-arms.

The battle started with the vanguard opening fire with the artillery. This was a common beginning to a battle, the idea being to cause chaos and disorder in the enemy ranks, whereupon the men at arms would engage in hand–to–hand combat. However, the terrain was so hilly and the Liègeois so well entrenched that the shots went over their heads, bringing down branches of trees 'as thick as legs and arms'.

The first assault was led by the archers, closely followed by pikemen. The mounted men-at-arms on the wings tried to charge with the archers, but were almost immediately halted by the rough terrain, not to mention the defenders' artillery, consisting of 100 guns, which were firing flat out. The archers continued to advance, but apparently ran out of arrows; the Liègeois, noticing this, came out, charged them, and succeeded in routing them. Duke Charles immediately ordered the men-at-arms and archers in the reserve to dismount; the rebels were put to flight and it is said that 3,000 to 4,000 were killed. However, the pursuit of the defeated enemy was made impossible not only by night falling, but by the undisciplined looting of Charles's troops, who were far more interested in robbing the corpses and eating and drinking the cheese and wine the Liègeois had left behind them than in chasing the enemy. The importance of following up a victory may be seen when we learn that Charles dared not continue his pursuit of the rebels the next day, fearing that they had regrouped during the night.

The Burgundian army similarly benefited from the Swiss Confederates' lack of cavalry after the battle of Grandson in 1476, when they were massively defeated, but escaped with very few casualties, the Swiss not having the wherewithal to pursue them.

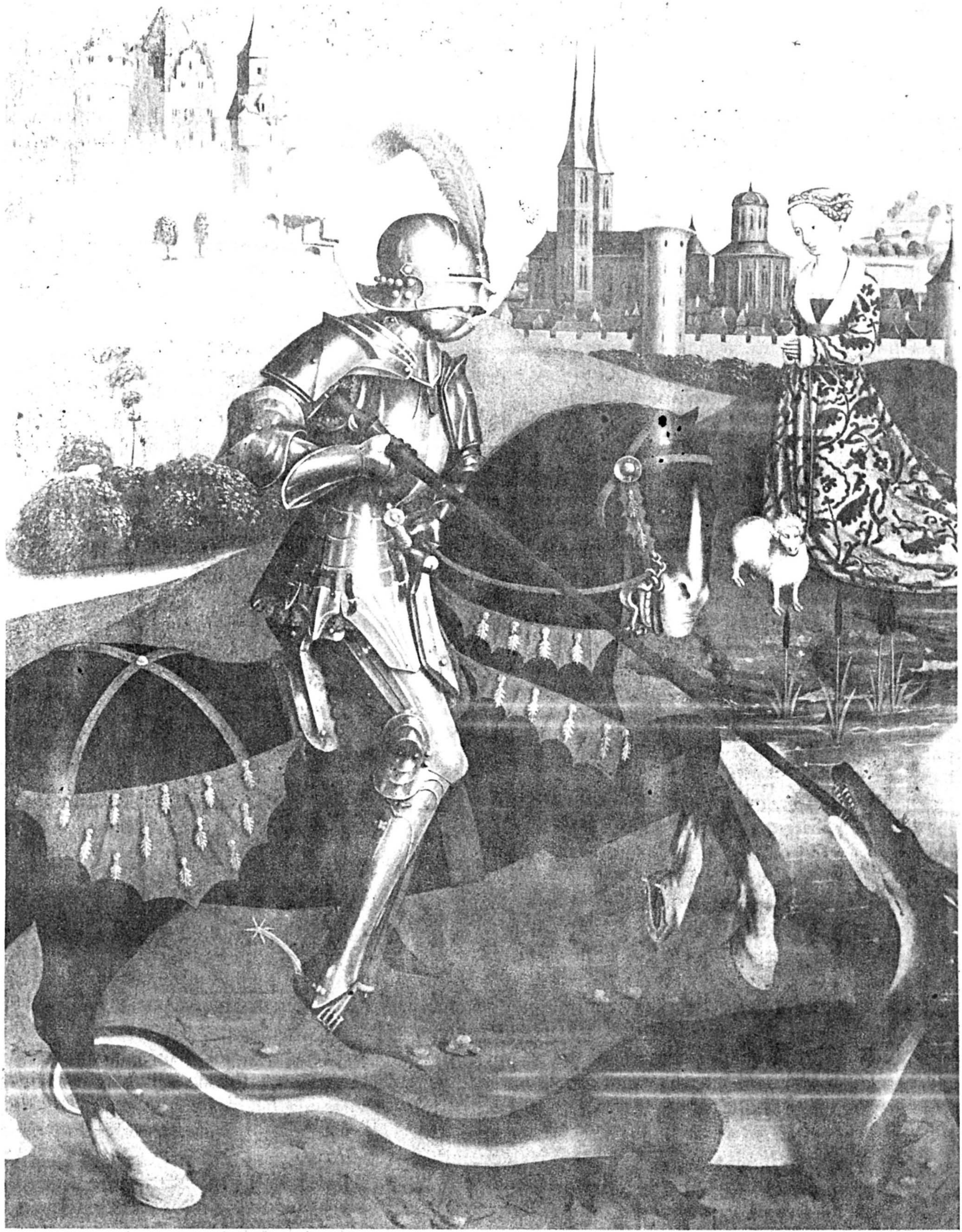
The last encounter we shall describe, the siege of Neuss in 1474–5, was caused by the citizens of Cologne rebelling in 1473 against their archbishop, Rupert of Bavaria, a Burgundian puppet. Although Cologne was not in the Burgundian sphere of influence Charles the Bold declared himself protector of the town, and came to Rupert's aid. In June 1474 Cologne itself would have been too much even for Charles to attack, and he started his campaign by besieging the town of Neuss, one of the most determined rebel strongholds some 20 miles down the Rhine from Cologne.

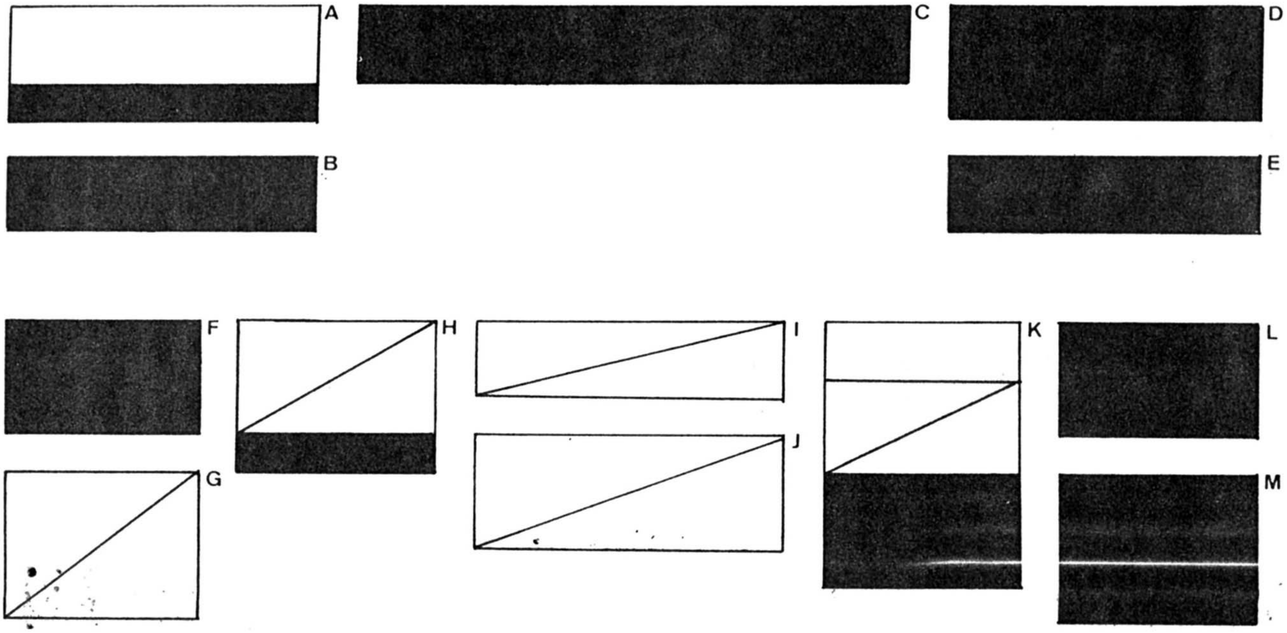
The description of the Burgundian camp by several independent eye-witnesses exceeds even that of Chastellain: we are told that it looked like a great fortified town with walls, moat and drawbridges, streets and alleyways. There were two markets, one of which was in the Italian quarter, selling every possible kind of merchandise: an apothecary had five waggons of goods delivered, and 'set up his shop stuffed with wares as if he had been in Ghent or Bruges'. There were clothiers, fishmongers, grocers, barbers, priests, musicians, hundreds of tents and wooden houses, wind- and water-mills, forges, taverns, bathhouses, restaurants, a tennis court, a gibbet, and of course the inevitable *filles de joie.* Christenings, marriages and funerals took place; the duke received a constant stream of foreign ambassadors and entertained them sumptuously. It was said that there were more temporary houses built by the besiegers than there were in Neuss itself.

However, the town was well fortified, stocked with plenty of food and fuel, and strongly garrisoned; the defenders had only to await rescue by their Emperor, Frederick III. But poor Frederick continually delayed: he had little money and less power, and went to enormous lengths of inactivity and procrastination to avoid having to face his powerful neighbour. By Christmas 1474, after six months of siege, the gates of Neuss had been reduced to rubble by Charles's 229 guns, everything down to the last rat had been eaten, and there was no sign of Frederick's relief army. Life was not as gay as before in the Burgundian camp either: soldiers had to go many miles to find fodder, and the peasants in the outlying countryside were beginning to resist.

Incredibly, Neuss was still holding out five months later, living on provisions obtained by nocturnal armed raids on Charles's camp. By then, Frederick had been unable to avoid gathering an army, and he entered Cologne on 6 May. Ever hopeful of some turn of events that would spare him this confrontation, Frederick managed to spend 16 days travelling the 24 miles to Neuss, a record even by medieval standards!

On 23 May 1475, in spite of desperate negotiations by papal legates riding from one party to the other, Charles decided to attack the Emperor, who had camped nearby, and who demonstrated no inclination whatever to start hostilities. We know





Charles the Bold's order of battle at Neuss, 23 May 1475. Solid black indicates troops of the ordinance; diagonally crossed, household troops; and white, troops under feudal obligation. (A) Men-at-arms of enfeoffed lords, with one company under the count of Celano. (B) Reserve—two companies under Antonio and Pietro de Lignana. (C) Archers (including Sir John Middleton's archers) and pikemen mingled. (D) Men-at-arms of Sir John Middleton, and one company under Jacob Galeoto. (E) Reserve—Nicola de Monforte, count of Campobasso, with 450 lances. (F) Men-at-arms of the companies of Berghes and Loyecte. (G) Reserve—gentlemen of the household, under Saint-Seigne. (H) Archers of the bodyguard and of the companies of Berghes and Loyecte. (I) Chamberlains and Gentlemen of the Chamber. (J) Reserve—men-at-arms of the guard, under Olivier de la Marche. (K) 200 Guelders handgunners, archers of the guard, and archers of the companies of Brochuysen, Chanteraine, Menton, Longueval and Vanperghe. (L) Men-at-arms of the companies of Brochuysen and Chanteraine. (M) Reserve—men-at-arms of the companies of Menton, Longueval and Vanperghe.

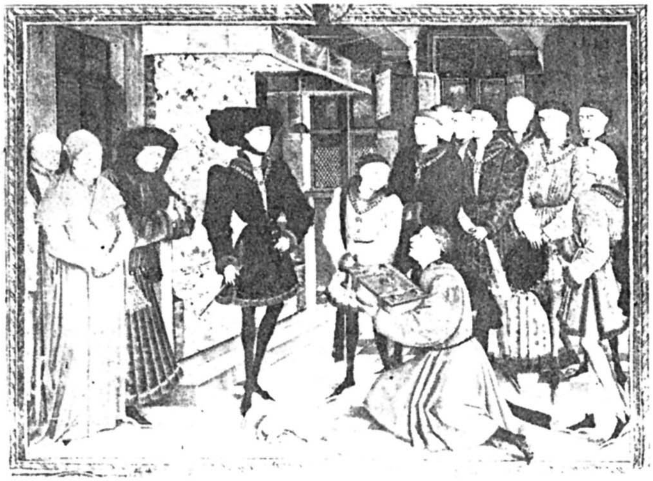
the exact formation that Charles took up, thanks to his detailed letter to his lieutenant in Luxembourg (see diagram).

In Duke Charles's words: 'We gave the cry of Notre Dame! Monseigneur St. George! and our usual cry of Bourgogne! but, before we made any of our formations march, we moved up our artillery three or four bowshots in front of us, together with the Italian infantry which had not been in any of the above-mentioned formations, so that it fired at and shot into the Emperor's camp in such a way that no complete tents, pavilions or lodgings were left standing and people could only remain there with great difficulty. Then, in the name of God, of our Lady and of Monseigneur St. George we gave the signal for the troops to march. This done, the trumpets began to sound and everyone marched joyfully and with smiling faces, making the sign of the cross and recommending themselves to God; the English, according to their custom, making the sign of the cross on the ground and kissing it. Then they all shouted the above-mentioned cry.'

St George and the Dragon, by Friedrich Herlin, c.1460. The northern Italian armour industry was so well organised that it even catered for the Germanic taste. St. George is shown here wearing an Italian 'export armour': apart from the sallet the armour is basically Italian in style and form, but the decoration and fluting are essentially Germanic. Note the use of the lance-rest, preventing the weapon from slipping back under the force of the blow, and the armoured saddle. (Stadtmuseum, Nördlingen)

Although this battle developed into no more than a set of skirmishes, it is an invaluable source of Burgundian military organisation. The next day Charles and Frederick arranged a truce without loss of face to either, and as soon as this had been concluded thousands of German troops invaded the Burgundian camp, attempting to catch a glimpse of the 'great Duke of the West'. On 18 June Charles gave a huge banquet in honour of the Imperial army, and raised camp nine days later.

Although siege tactics cannot be described at length in this book, there are some splendid examples of cunning propaganda quite worthy of modern warfare. When the Flemish rebels were besieging the town of Maastricht in 1408 the



Presentation of the Chronicles of Hainault, c.1440. Duke Philip the Good is shown receiving the manuscript while his son, the young Count of Charolais, later Duke Charles the Bold, stands on his left. Members of the Order of the Golden Fleece, founded by Philip in 1429 in honour of his marriage to Isabel of Portugal, look on dressed in the latest court fashion. Their 'pudding-basin' hairstyle is the one which Joan of Arc was condemned for wearing. The court of Burgundy was at the forefront of fashion in Europe. (Bibliothèque royal Albert 1er, Brussels)

Burgundian puppet bishop, John of Bavaria, sent letters to the moderates among the rebel leaders, inviting them to overthrow their extremist colleagues. When he requested help from the duke of Burgundy, John the Fearless, the rebels sent the latter forged letters from the king of France warning the duke not to interfere in the internal affairs of Liège. They also sent 'pilgrims' into the town of Maastricht, who reported that they had seen no evidence of any French or Burgundian relief army, and advised the besieged to surrender.

It is interesting to note the enormous proportion of casualties in medieval battles: it has been calculated that between 20 and 50 per cent of a defeated army was killed, although figures of this kind are nearly always suspect. The dead were by no means always recognisable as belonging to one side or the other: many were quite naked after being plundered, and relatives and friends would have removed a large number for burial before an official count could be made. Obviously medical ignorance accounted for a great number of deaths; perforated intestines infallibly gave rise to peritonitis, from which there was no escape. But there are other reasons for the high death count: a fleeing army offered no resistance, and provided the victorious army had cavalry they could pursue the unfortunate infantry, cutting them down with great ease. Wounded enemies, if not ransomable, were usually finished off, almost certainly in order to despoil them rather than for any humanitarian reasons. Battles in which a large proportion of cavalry participated on both sides may have been a lot less bloody: armour was probably quite effective, and most men-at-arms could offer ransom.

Arms and Armour

There is not space in this book to enter fully into the technological intricacies of 14th- and 15th-century armour; interested readers should consult Claude Blair's monumental work *European Armour* (B.T. Batsford, London), to which the author is indebted. However, the most interesting and important progress was made in armour during our period: the 14th century was a time of great experimentation in new materials and techniques, while the end of the 15th century saw the culminating glory of 'white' armour, as full plate armour was called. Decoration was severely limited[1] and emphasis put on line and form; the restrained 'sculptures in steel' that resulted owe their beauty and elegance largely to pure function.

The study of armour during the early period, up to c.1410, is still by no means complete; it has so far been impossible to isolate specific national styles, if indeed they existed at all. By 1364 mail hauberks and coats of plates were starting to be exchanged by those who could afford it for true plate armour, which had not been known in Europe since the fall of Rome. This fact presents students of armour with a singular problem, for helmets forged from a single piece of iron had always been manufactured, and no doubt the smith capable of this would have been able to forge a breastplate.

By the early years of the 15th century it is clear that the dominant armour-producing areas were Germany and northern Italy. However, there is massive evidence that other centres existed, notably the northern Burgundian states. No less than 73 armourers are recorded in Brussels at one time during this century, while Ghent and Liège were other important producers; as a precautionary measure against the Liège rebels in 1467, Charles the Bold forbade the forging of armour in the city, and we also learn that in the mid-15th century the Liège armourers displayed their ware in stalls on the cathedral steps.

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[1] Princely armours were an exception: the best had gilt borders and were covered in precious stones. In 1410 John the Fearless spent £1,727 on having his armour, swords and daggers decorated with pearls and diamonds by Burgundian goldsmiths.

Unfortunately, however, it has proved impossible in all but a few cases to distinguish between locally-made Burgundian armour and imported products. The problem of 'origin' is further complicated by the number of Milanese armourers who emigrated to Burgundy during the 15th century, not to speak of such pitfalls as Italian export armours—Italian-made armours in Germanic style for sale to the northern markets.

Nor is it clear to what extent armour and weapons were issued to soldiers of the Burgundian armies, or how much a man was responsible for providing himself. There are many instances of bulk purchases of arms by the dukes: in 1386, Philip the Bold ordered 4,000 escutcheons painted with his arms in red and white for use by his men during his planned invasion of England. Philip the Good bought 48 hauberks at the Antwerp fair in 1435, and in 1449 the ducal accounts show purchases of 146 brigandines, 33 arm harnesses and 649 helmets. These were probably for use by the ducal household guard, however: men-at-arms were no doubt considered to be of sufficient means to provide their own weapons and armour, together with those of their retinue, while foreign mercenaries must have carried their arms and armour as tools of their trade. In spite of this not all the gentry were well equipped: at Philip the Bold's review at Chatillon in 1364, only 108 men-at-arms out of 153 had full body protection—the others had no leg armour.

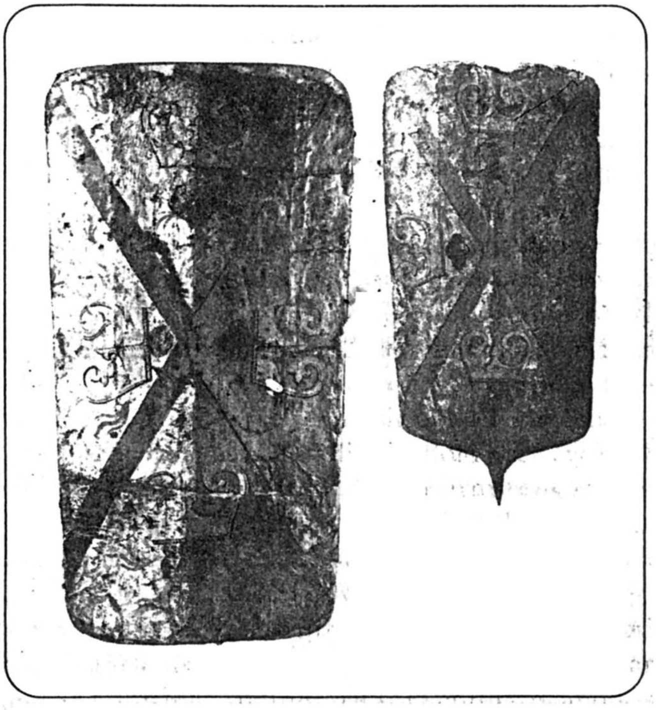
Armour was always expensive, and was frequently handed down from generation to generation, so that it can have been of no surprise to see footsoldiers wearing odd pieces of armour or helmets dating back a century or more. However, such was the importance attached to arms that in Liège only those citizens who possessed them had the right to vote. Laws were also passed forbidding the pawning of arms, or using them as collateral for debts.

The bearing of arms in urban areas (in northern Burgundy at least) was strictly controlled: everyone had the right to carry a small knife called a *taille-pain*, but swords were tolerated only on condition that the bearer could prove that he intended to, or had been travelling outside the town limits. Visiting foreigners were required to deposit their weapons with their innkeeper for the duration of their stay.

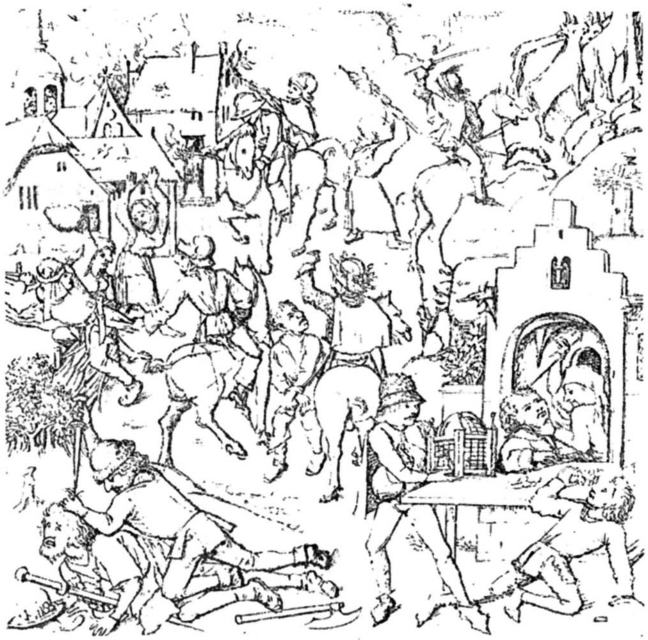
The manufacture of arms other than armour and swords, which required special skills and equipment, flourished in almost every town in Europe. Any country blacksmith was capable of turning out pikeheads, arrowheads, axes and maces, and these were all required in vast quantities. Countless numbers of smiths were employed to satisfy this demand; in Ghent alone, 32 specialised weapon smiths are recorded in 1357.

Bows and Crossbows

Since the battle of Crécy in 1346 the devastating effect of the English longbowmen was well known, but on the Continent it was hardly possible to organise the discipline and continual training



The pavise was the typical shield of the crossbowman, who used it for cover while spanning his weapon. Of wood and leather, it usually had a metal spike at the base for purchase in the soil, and was fitted with a handle of twisted sinews behind. In spite of the large number of medieval pavises which have survived, they figure surprisingly rarely in contemporary illustrations. The name is supposedly derived from Pavia in Italy. These examples—not to scale—are painted with the emblems of Burgundy. (Swiss National Museum, Zurich, and Bern Historical Museum)



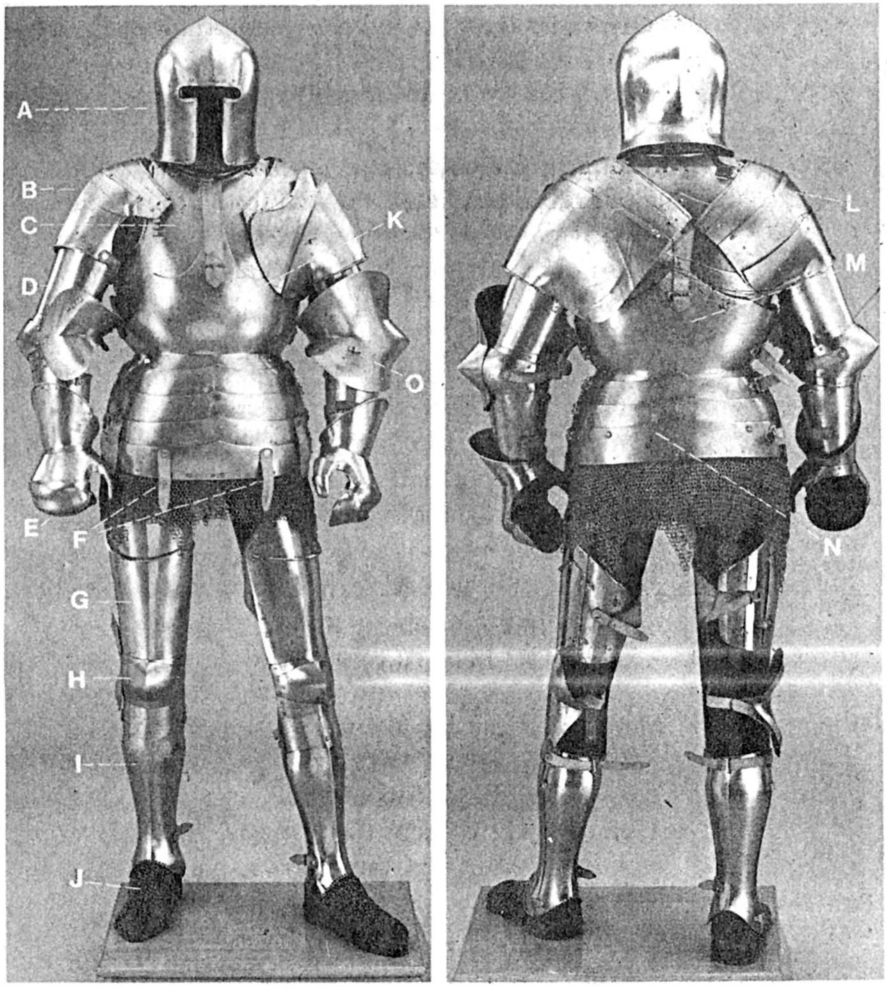
Soldiers looting and pillaging, 15th century. Such excesses were by no means limited to enemy territory, and resulted from troops being expected to provide for themselves. (Private collection)

necessary to make the most of this weapon. The typical Continental longbow was usually shorter than its English counterpart of six feet or more. The best bows were made of yew from the south of France or Madeira, whose wood was superior to that of any other country, but elm and ash were used and were quite serviceable. The English war bow probably drew between 80 and 160lbs tension, and, to judge from among the earliest specimens to have survived (from the wreck of the *Mary Rose* in 1545), was a simple stave of D-section. The *Mary Rose* bows had nocks cut directly in the wood to take the bowstring, but these were probably 'issue' bows, and smarter or custom-made weapons had horn caps on the ends. In 1387 the accounts of the Receiver of the Artillery in Burgundy mention painted yew-wood bows.

Longbow arrows were usually made from ash or willow, but the latter wood was lighter and its effect consequently less destructive. By the end of the 13th century the great broadhead arrow was relegated to hunting, as it did not have the penetrating capabilities necessary to pierce ever-improving armour. The most usual head of our period was the bodkin type, with a three- or four-sided point, weighing between ½oz. and 1½oz. Instances have been found of barbed heads very loosely fixed to the shaft, so that the head would stay in the wound. Modern tests have shown that these arrows were quite capable of piercing contemporary plate armour when shot at a direct angle from fairly short range. However, as the 'angle of attack' increases the penetration decreases, until at around 60° from a 'straight' shot the head either fractures or ricochets off. Nevertheless, a hail of arrows even at long range would have kept armoured men in a defensive position with their heads down, presenting no chink in their armour, and would certainly have maddened any unprotected horses.

The range of a longbow varies with the weight of the arrow shot, but it is probable that distances of 300 yards were attained with the smaller-headed arrows. The greatest advantage of the longbow is the rate of shooting, and to judge from modern experts, to loose ten arrows a minute would have been within the capabilities of even a mediocre archer. Accounts mentioning the number of arrows issued to archers are rare, but any figure between 18 and 30 may be found.

The crossbow needs little or no training, but because of its mechanical loading has a shooting rate far inferior to that of the longbow. Until the 15th century crossbows were usually of composite construction, made of layers of sinew and wood, but early examples are known to have been of solid wood, probably yew. There were several methods of drawing, the earliest being to stand on the bow, catch the string in a hook on the belt, and straighten up; there were goat's-foot levers and complicated arrangements of strings and pulleys, none of which were conducive to rapid shooting. A 14th-century solid yew specimen found at Berkhamstead Castle is estimated to have a tension of some 150lbs and it is thought that a composite bow loaded with a belt hook had a range of about 200 yards. However, early in the 15th century progress in metallurgy allowed the first steel crossbows to be made; and in 1446 we find a ducal purchase order for 500 steel crossbows, probably still a rarity then. These new bows, although they had a propensity to break in cold weather, could take a far greater tension than composite bows, and required an all-steel rack and pinion mechanism called a crannequin to load them—although illustrations still show the cord and pulley mechanism, far cheaper to make, in use for a long time after. Sir Ralph Payne-Gallway owned a



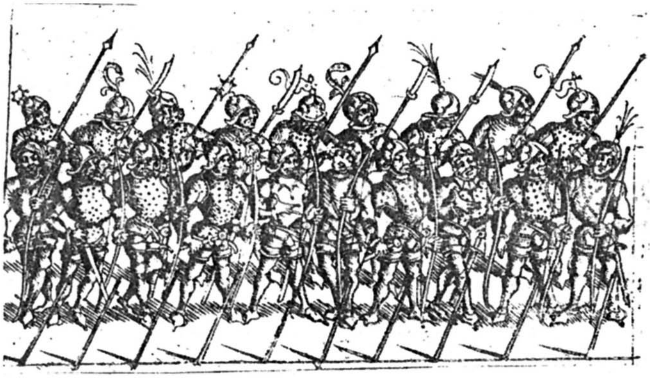
A superb armour, c.1450 60, made by the Missaglia workshop of Milan, the most important family of armourers in Italy at this time.
(A) Barbute. (B) Pauldron. (C) Breastplate. (D) Upper vambrace. (E) Mitten gauntlet. (F) Tassets (missing) mounted on these straps. (G) Cuisse. (H) Poleyn. (I) Greave. (J) Sabaton. (K) Plackart. (L) Upper backplate. (M) Lower backplate. (N) Fauld. (O) Couter. (Glasgow Museums and Art Galleries)

15th-century Genoese steel crossbow, and at the beginning of this century amazed his friends by shooting a bolt across the Menai Straits, a distance of some 450 yards; he calculated the pull at 1,200lbs.

Crossbow strings were usually made of sinew. The use of this material, which stretches enormously when wet, explains both the common use of crossbow covers when transporting these weapons on horseback or on foot, and the practice of keeping a spare string under the helmet or hat, where it would be safe from rain. The composite bow continued in favour, however, particularly among the poorer nations, until the end of the 15th century, doubtless due to its reliability and relatively low cost.

Bolts used in warfare were usually of the bodkin type, with a tapered square or diamond section. These heads would open up the links of mail armour with ease; but when plate armour was introduced, with its cleverly placed angles and lance-stops, the improved protection gave rise to a new bolt, the quarrel. This was square and blunt, with four sharp corners which, if one caught a hold on armour, could easily knock down or unhorse a man. Unlike the feather flights used on longbow arrows, bolts had flights made of thin wood, parchment, or even leather.

There are some interesting records of the numbers of arrows shot at various Burgundian engagements. At the battle of Montlhéry in 1465 the ducal ledgers account for 38,400 arrows in one day. At the siege of Villy, which lasted less than a month, 10,200 arrows and 1,500 bolts were expended; while at the siege of Dinant, which continued for only a week, the army used 27,840 arrows and 1,780 bolts.



A row of Burgundian archers and footsoldiers, by Master WA of Bruges (active c.1465–85). Note stakes in front of the archers—although none of the archers seem to carry the mallet required in Charles the Bold's ordinance. Nearly all these soldiers wear brigandines and visored sallets, two of which may have the company pennant attached (back row, centre and far right). (Private collection)

The Plates

(Research by G. A. Embleton and N. Michael)

Plate A: Philip the Bold's army in 1363

Although Philip the Bold officially took possession of the Duchy of Burgundy in June 1364, he held a review of all the Duchy's troops at Chatillon in August of the year before.

A1: Crossbowman from a garrison

This soldier wears the white cross of France on his mail shirt: it should be remembered that Burgundy was a duchy of France, and owed allegiance to the French king. Not until the early 15th century did the St. Andrew's cross appear as a military emblem of Burgundy, and was adopted as a result of the civil war in France, no doubt to distinguish between the various partisans. The crossbowman's belthook, quiver, and the interesting way he carries his composite bow are based on a French drawing of c.1360. Note his separate hose rolled down to the knees.

A2: Jean de Montaigu, Sire de Sombernon

An attempted reconstruction of Jean de Montaigu, Sire de Sombernon, who was appointed the duke's lieutenant in 1363. This important official wears a conical basinet with mail aventail, plate armour for his arms, and leather reinforced with riveted metal strips on his calves. Under his coat armour, which bears his heraldic arms, he wears a coat of plates with a skirt or fauld of narrow horizontal strips. His sword is secured by a jewelled belt slung low on the hips, a popular fashion in the late 1350s, and his feet are enclosed in narrow overlapping plates, echoing the civilian shoe of this period. A valet holds Jean de Montaigu's banner in the background.

A3: Écuyer

One of the 105 *écuyers* mustered for Duke Philip's review. As many of the men-at-arms had no leg armour for the event, this *écuyer* is wearing only soled hose. His coat of plates, buckled at the back, is based on the carving of a knight from Verden Cathedral, and although this type of armour was not exactly out of date, it was being rapidly superseded by true plate armour.

Plate B: The siege of Vellexon, 1409–1410

B1: Jean de Vergy, Marshal of Burgundy

An attempted reconstruction of Jean de Vergy, Marshal of Burgundy, put in charge of the siege by Duke John the Fearless. As the most important military official of the duchy he wears a full plain metal armour, which was coming to development at about this time. The arm and leg harnesses are reinforced with vandyked bands, and over his armour Jean wears an open surcoat decorated with his heraldic device.

B2, B3: Mason and gunner

A mason holds a wooden template while a gunner tries the diameter of a stone cannon ball. The hole in the template would have been taken from a circle drawn on a sheet of parchment stretched over the muzzle of the cannon. Both the gunner and mason wear typical civilian costume: the mason has separate footless hose, and the gunner wears a canvas apron over his bandaged knee (see text). In the foreground are the rations distributed to each man for lunch and supper during the siege: a pint of wine and two loaves. For breakfast each man received a ½ pint of wine and one loaf.

B4: Archer

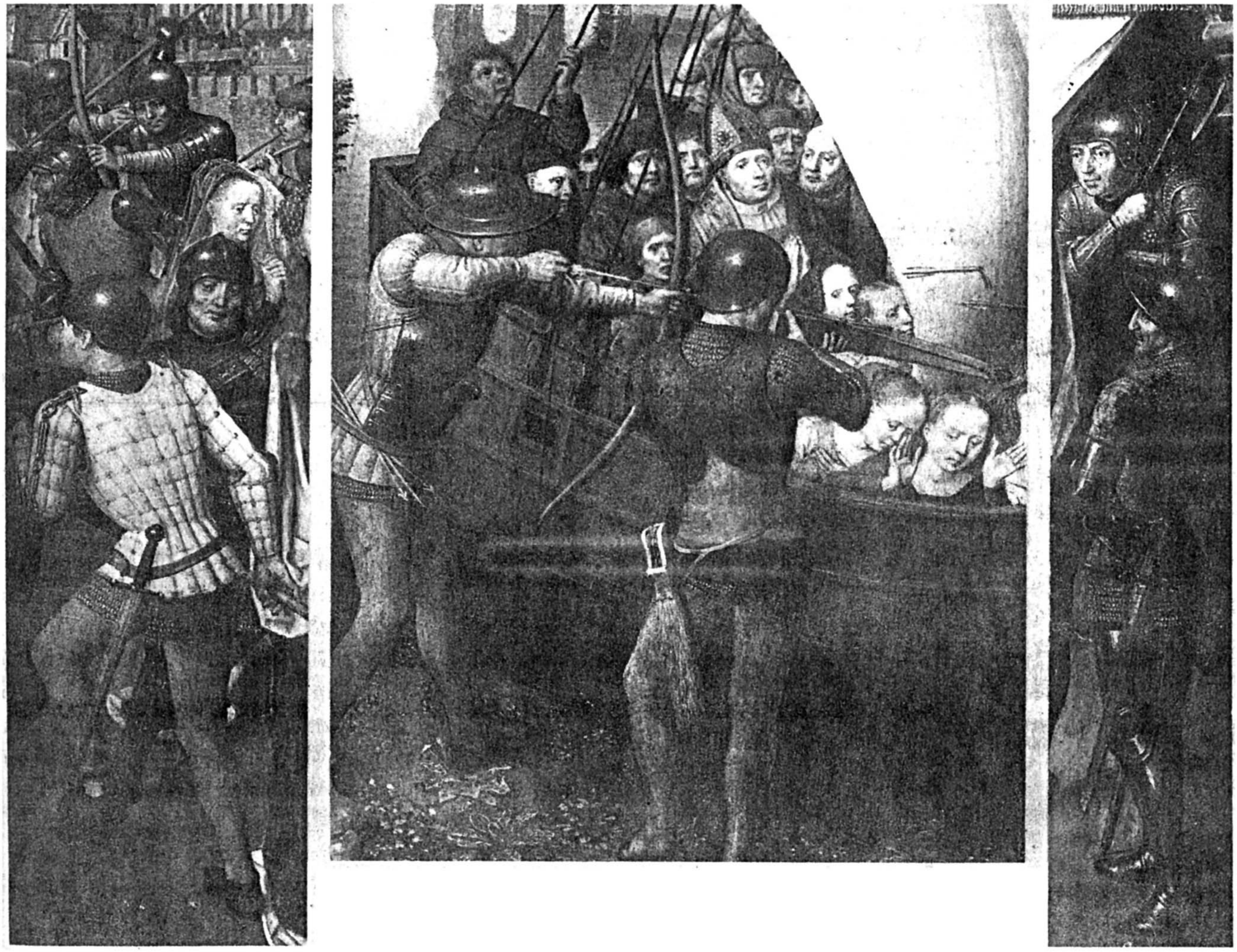
An archer wearing a scroll on his arm inscribed 'DIJON'. The ducal accounts for 1409 show the following entry: 'To furnish for one month 30 armed men and 15 crossbowmen, dressed and ready to go . . . to the siege . . . of Vellexon . . . for one aune and a half of vermilion cloth from which were cut the letters dijon put on the sleeve of each jack and two aunes of white cloth on which were put the said letters in the form of a scroll.' (Communal archives of Dijon)

In the background gunners serve a bombard, whose mantle would have been lowered in order to protect them while loading. One gunner wears the white cross of France: this would be an old jacket, as Franco-Burgundian relations were at a low ebb, and the St. Andrew's cross of Burgundy was starting to be adopted as the duchy's emblem.

C1: Philip the Good, Duke of Burgundy, dressed for the joust

This figure of Duke Philip, in an emblazoned surcoat on a trappered horse, is based on a contemporary armorial reference book by an *officier d'armes* of the court: the *Armorial Equestre de l'Europe et*

Details from the Reliquary of St. Ursula by Hans Memling (1430/5–94). (Left) A Flemish soldier, probably typical of the infantry of the Burgundian army. He wears a quilted jacket over a mail shirt; the chain protecting his left arm is a form of protection very rarely illustrated, but must have been most economical, and so possibly quite common. His hose is obviously of the footless variety, with a strap under the foot, as he has rolled one leg up over his ankle. (Centre) Crossbowman shooting with a composite bow of wood and sinew; steel bows started to be introduced during the 15th century, but had a reputation for breaking in cold weather. His quiver is of a type used throughout Europe in the 15th century. The archer, whose bow is shorter than the usual English type, wears a breastplate with fauld, and a typical Germanic kettle hat. (Right) This soldier wears a brigandine over a mail shirt, together with plate arm and leg defences; his comrade above wields a war axe. (Hansmemlingmuseum, Bruges)



de la Toison d'Or, c.1450. We have replaced the barred close-helmet of the original with a jousting helm held by a servant. Note the Order of the Golden Fleece around the duke's neck: ritual ceremony and etiquette reached a peak under Philip's reign. Tournaments and jousts were organised by the heralds at arms under extremely complex codes of behaviour. By this time lances and swords used for jousting were blunted, but severe injury or death could still result.

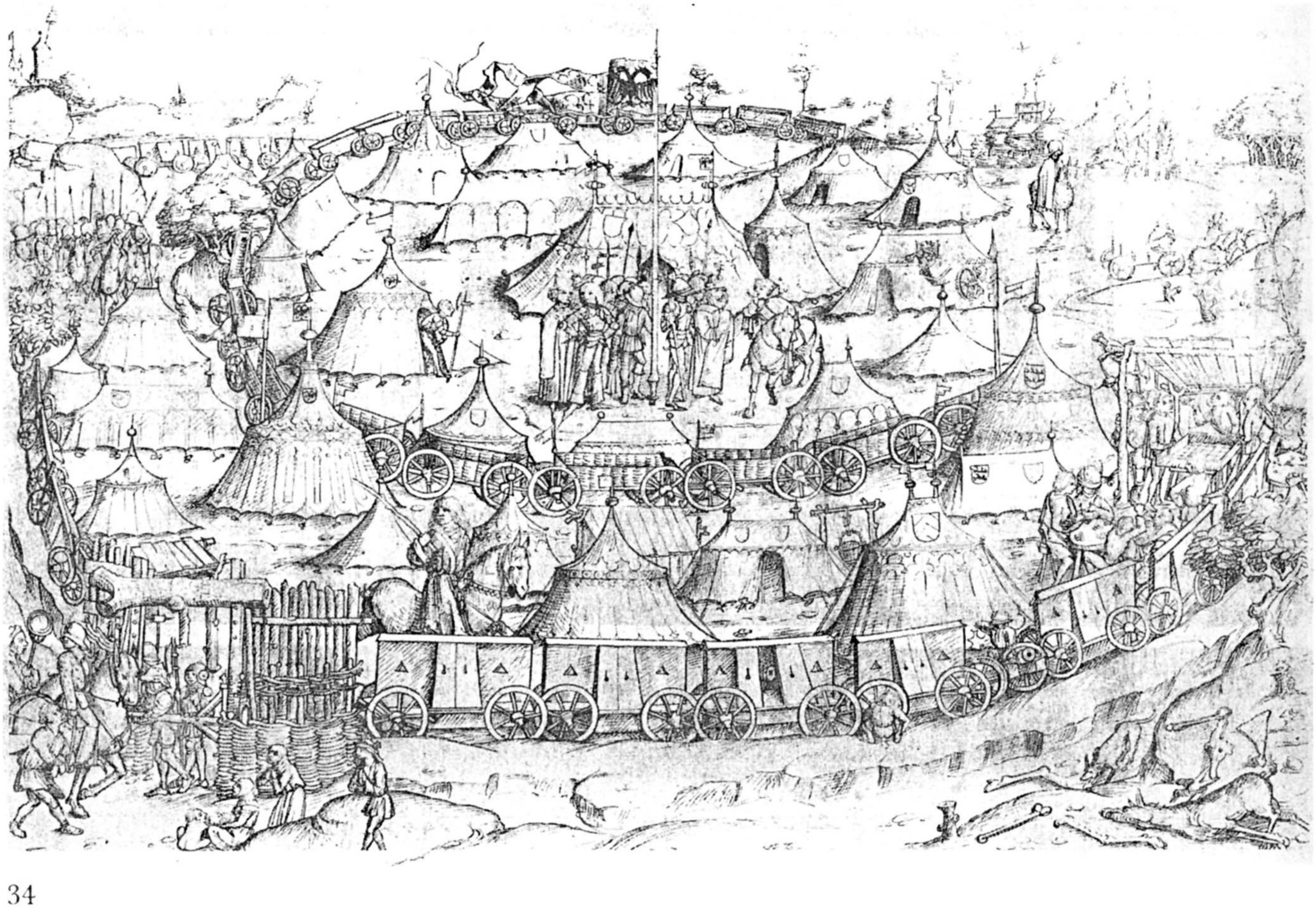
C2: Gentleman of the court
C3: Trumpeter

A gentleman of the Burgundian court holds the duke's helm. He wears a small badge on his gown bearing the arms of Burgundy. Note his fashionable long *poulaines*, and the 'pudding basin' haircut so popular in court circles at the time. Both he and the trumpeter (C3) are dressed all in white, and are taken from a contemporary painting of a hunting scene showing the entire Burgundian court dressed in white, from the duke to the servants. It should not be surmised that this was in any way a court livery or uniform: such were the splendours of medieval costume that at a ruler's whim his complete entourage would be provided with cloth to celebrate some occasion. The Bishop of Liège was an important distributor of ceremonial material: in 1435 all the mounted members of his suite of nobles and bishops wore white, and in 1442 he attended the Emperor's coronation with 250 horsemen 'all in gold cloth adorned'.

Plate D: The flags of Burgundy

Flags in the middle ages were particularly subject to heraldic control and complicated rules existed as to who could carry what type of flag. In 14th century Burgundy the most basic form was thus: *chevaliers*

This view of the Imperial camp, c.1480, confirms the descriptions of Burgundian camps of this period; but most of them must have been many times more extensive than is suggested in this treatment, sheltering 10,000 or more people. This illustration is packed with fascinating detail and repays close study. Note, on the right, the troops being paid: their salaries are calculated on an 'exchequer', a table resembling a chess board on which counters were moved. In the foreground we see the wheeled barriers with gunports, and the interesting gate construction. (Private collection)



bacheliers could carry a pennon, usually a long streamer, sometimes forked at the ends. *Chevaliers bannerets*, viscounts, counts and marquesses, the Marshal of Burgundy and the *maître des arbalêtriers* (master of artillery) had the right to carry a banner, a nearly square flag. Princes and dukes bore both banner and pennon: Philip the Bold's banner in 1386 measured 2½ *aunes* long by 1½ *aunes* wide[1].

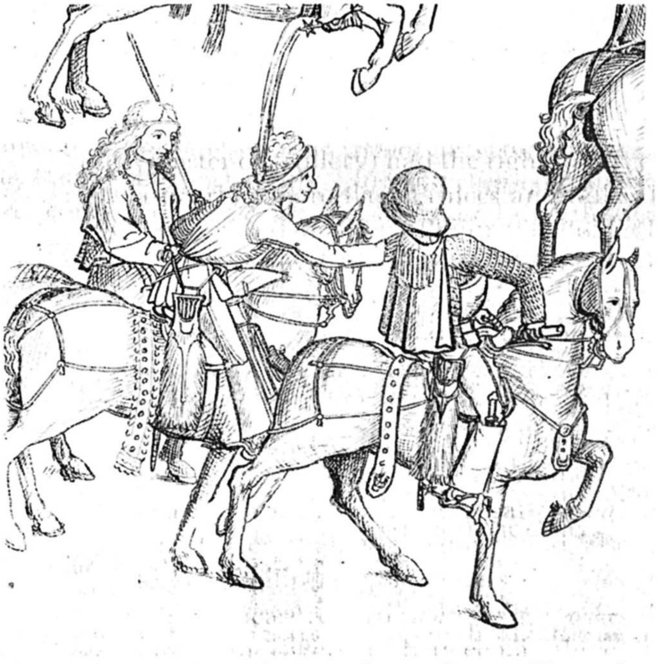
By the 15th century banners and pennons were more rarely carried, and were often supplanted by other types of flag: *pennonceaux*, *guidons*, *enseignes* and *étandards*. The shape of each of these flags and their appellations are as confused as the types of medieval artillery, but the *pennonceaux* and *guidons* were usually forked, while the great *étandard* (standard) was larger than the banner and also sometimes forked. Philip the Bold possessed an *étandard* in 1386 which measured 16 *aunes* by 2½ *aunes*. The most important difference between all these types is that banners and pennons bore their owners' official heraldic arms, while *pennonceaux* and *étandards* bore the bearers' personal emblems (such as the steel and flint of Charles the Bold).

The Swiss captured many of the Burgundian flags in the wars during the years 1475–1477, and happily preserved them, carefully copying them on paper in the 17th century when these beautiful ephemera started to deteriorate with age.

D1: A reconstruction of the sallet of a *chef d'escadre* in accordance with the St. Maximin ordinance of 1473. The painting on this flag would have matched that on the company banner, and the symbols on it show the bearer to be of the second squadron attached to the third company: $\overset{\text{ccc}}{\text{ii}}$

D2: The banner of Burgundy captured by the Swiss at the battle of Morat in 1476 bears the diagonal stripes of old Burgundy, the *fleur de lys* of France, the red lions of Brabant and Limburg and the black lion of Flanders.

D3: A company ensign, from the Swiss flag-book of Glarus. Note the 'company saint', Bartholomew, holding the knife with which he was flayed. The single 'c' next to the steel and flint on the right shows that the flag belonged to the first company.



Group of mounted crossbowmen from a German illustration of the late 15th century. Note the crossbow covered against the rain, the fur-covered quivers, and the thigh-length boots turned down to the ankle. (Private collection)

D4: Another ensign from Glarus, this time showing St. Andrew, the patron saint of Burgundy. Note the symbols viij^{c} to the right. Regrettably, the author has never found a flag where the company and squadron numbers and letters accord exactly with the rules laid down in the 1473 ordinance: either the regulations had changed by the time this flag was captured, or the 17th century copyist misinterpreted the symbols painted on the decaying silk.

D5: This example from the Fribourg flag-book must have been a standard of the third company of one of Charles the Bold's unlucky armies, either at Héricourt, Grandson, Morat or Nancy. Note the ragged staffs forming the St. Andrew's cross of Burgundy.

D6: A *pennonceaux* or *guidon* captured by the Swiss at Grandson in 1476: the original is still preserved at Solothurn. This flag, which is of particular interest, belonged to a company of crossbowmen from the County of Burgundy (*Franche comté*).

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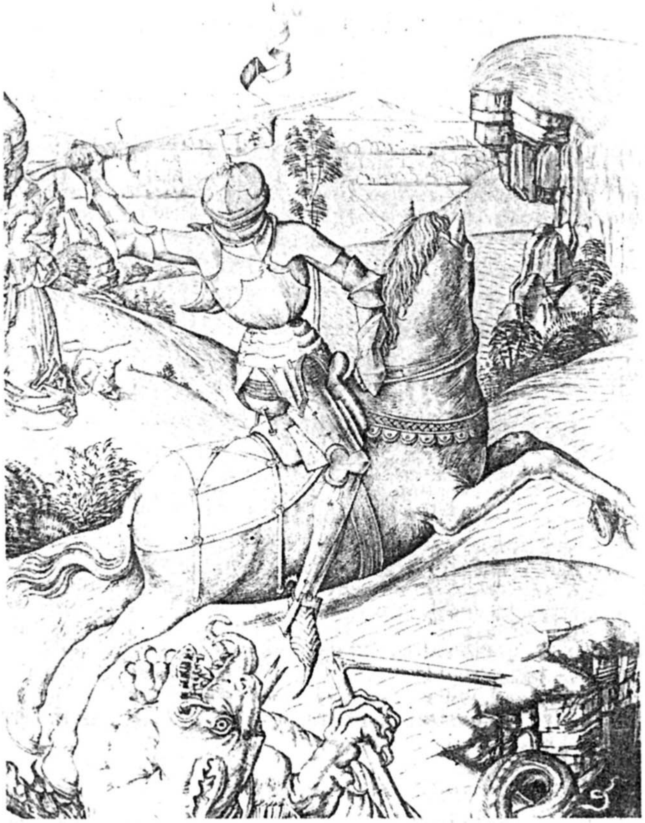
[1] The *aune* was the French equivalent of the English ell, a cloth measure now standardised at 45 inches. This would make the flags cited above of ridiculous dimensions, and as the etymologies of both *aune* and ell derive from the world for a forearm, the measure is far more likely to have been in the region of 15 inches.



St. George, by Master FVB, an engraver active c.1480, possibly from Bruges in Flanders. Note the flag on the saint's sallet, as described in Charles the Bold's ordinance, and the peculiar construction of the war-saddle. The fish-tail pommel of the saint's sword is one of the commonest north-west European styles of the 15th century. (Rijksmuseum Stichting, Amsterdam)

D7, D8: Two company flags showing SS. Peter and Andrew, captured at Grandson and Morat respectively. Again, the system of enumeration is missing from the flags, which are taken from the flag-book of Lucerne.

Plate E: A scene after a siege in the 1470s

These representations are largely based on the illustrations in the chronicle of the Swiss, Diebold Schilling, who fought against Charles the Bold's army. His work contains many splendid pictures of Swiss and Burgundian artillery both on the march and in action.

E1: A small bombard or *veuglaire* on the march. Guns were often, possibly always, painted: this must have been primarily to prevent rust, but medieval taste required bright colours. In 1479 we learn that the entire artillery park of the town of Ghent was painted red. Note the mantle with the ducal banners, which would be raised to protect the gunners. In the background is another *veuglaire* on a cart with what appear to be four long cases, probably for ammunition. This detail is taken from a Flemish manuscript c.1470 of the works of Xenophon, another of Charles the Bold's favourite authors.

E2: A master gunner examines a burst bombard. The hoop and stave construction of the gun may be clearly seen at the point of damage. Note the stakes and *oreiller* to take the recoil, and the method of elevation. This bombard is based on Mons Meg, a Burgundian bombard commissioned by Philip the Good in 1449 and later sent by him as a gift to King James II of Scotland. The gun is still in Edinburgh castle: it is over 13 feet long, weighs five tons, and shot a stone weighing 549lbs.

E3: A gunner cleans out the vent of a serpentine. Its mantle, bearing the arms of Burgundy, is in the upright position. The barrel bears traces of paint, largely burned off during the action, and the vent is surrounded by the characteristic traces of burnt gunpowder. In the foreground a clerk checks the remaining ammunition. The Schilling chronicle shows many pictures of boxes containing balls and long canvas bags, which are presumably 'cartridges' of pre-measured powder charges. A ramrod and powder ladle lie nearby.

Plate F: Men of the ordinances, 1471–1477

F1: Man-at-arms

A man-at-arms reconstructed after a combination of the 1471 and 1473 ordinances (see text). His 'sharp knife' has been portrayed as a short thrusting sword: the arrival of plate armour neutralised the sword as a cutting weapon, and by the 15th century they were more sharply pointed, with increased rigidity. The man-at-arms's war hammer is taken from a contemporary Burgundian weapon in Zurich Museum, and the horse armour is the Milanese example of which a photograph may be found elsewhere in this book.

F2: Valet

A valet bearing the banner of Louis de Châlons-

Châteauguyon, killed by the Swiss when he was 28 years old at the battle of Grandson in 1476; his banner was also captured. The valets seem to have come from the lower strata of society, but this one, being the servant of a Burgundian nobleman, wears a mail shirt and a good velvet brigandine with gilded rivets, under a metal plackart. He has a steel cap with rondels to protect the sides of the head. Most valets would almost certainly have been far less well equipped than this one.

F3: Servant

A servant or page holds the man-at-arms's lance. He is dressed in typical civilian costume, and if he is a page could well be the son of a lesser gentleman sent to learn court etiquette, manners and warfare from his mentor.

Plate G: Men of the ordinances, 1471–1477

Much of the equipment and clothing of these figures is described in the text dealing with the ordinances, to which the reader should refer.

G1: Crossbowman

This crossbowman holds a pavise painted with the emblems of Burgundy, a St. Andrew's cross and stylised sparking flints. These 'personal' emblems had no connection with the official heraldic arms, but were adopted and modified at the whim of their creators. John the Fearless at first had a hop leaf as his emblem, but when the French king displayed a ragged staff (symbolising his punitive intentions towards Burgundy), John adopted a plane with wood chippings as a reply in 1405. Under Philip the Good the plane turned into a flint, or firestone, and the chippings into sparks, and Charles the Bold added the motto *Je l'ay emprins*—'I have undertaken it'. The crossbowman's quiver with the same motif is taken from a contemporary manuscript. Note also his crossbow cover and crannequin.

G2: Pikeman

A pikeman as described in the 1472 ordinance. About to wade a stream, he has rolled up his footless hose and tucked his shoes in his belt, a pleasing detail taken from the illustrated chronicle of the Swiss Tschachtlan, c.1474.

G3: Coustillier

A *coustillier* dressed in the German fashion. *Coustilliers* appear to have come mostly from the middle classes, and instances are found of *écuyers* down on their luck offering their services as *coustilliers*. This one wears a German sallet typically decorated with a scarf and feather. Note his thigh-length boots turned down; the tab has two holes for points which were probably attached to the doublet. The brigandine under his jacket is just visible through the side vent.

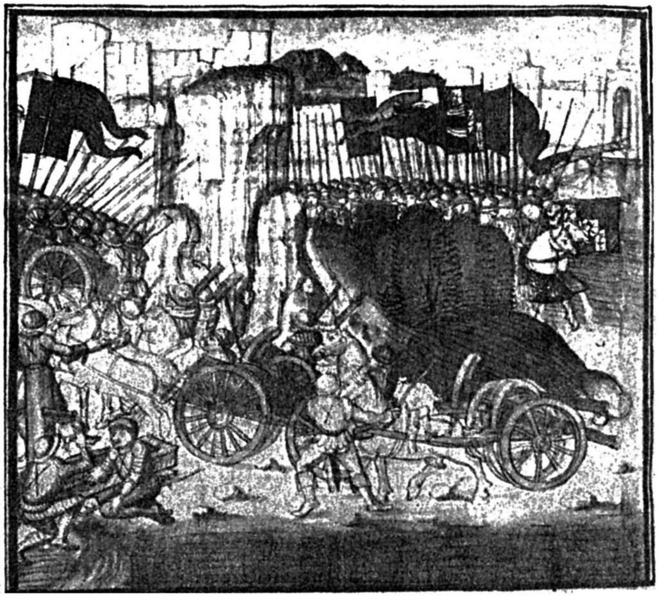
G4: Crossbowman

A crossbowman quickly draws a bolt from the neck of his jacket, an interesting detail taken from the Swiss Schilling chronicle. His buff leather bag is illustrated in a Franco-Burgundian miniature of c.1440.

Plate H: Men of the ordinances, 1471–1477

H1: Handgunner

This handgunner wears a small kettle hat commonly illustrated on Burgundian soldiers in the



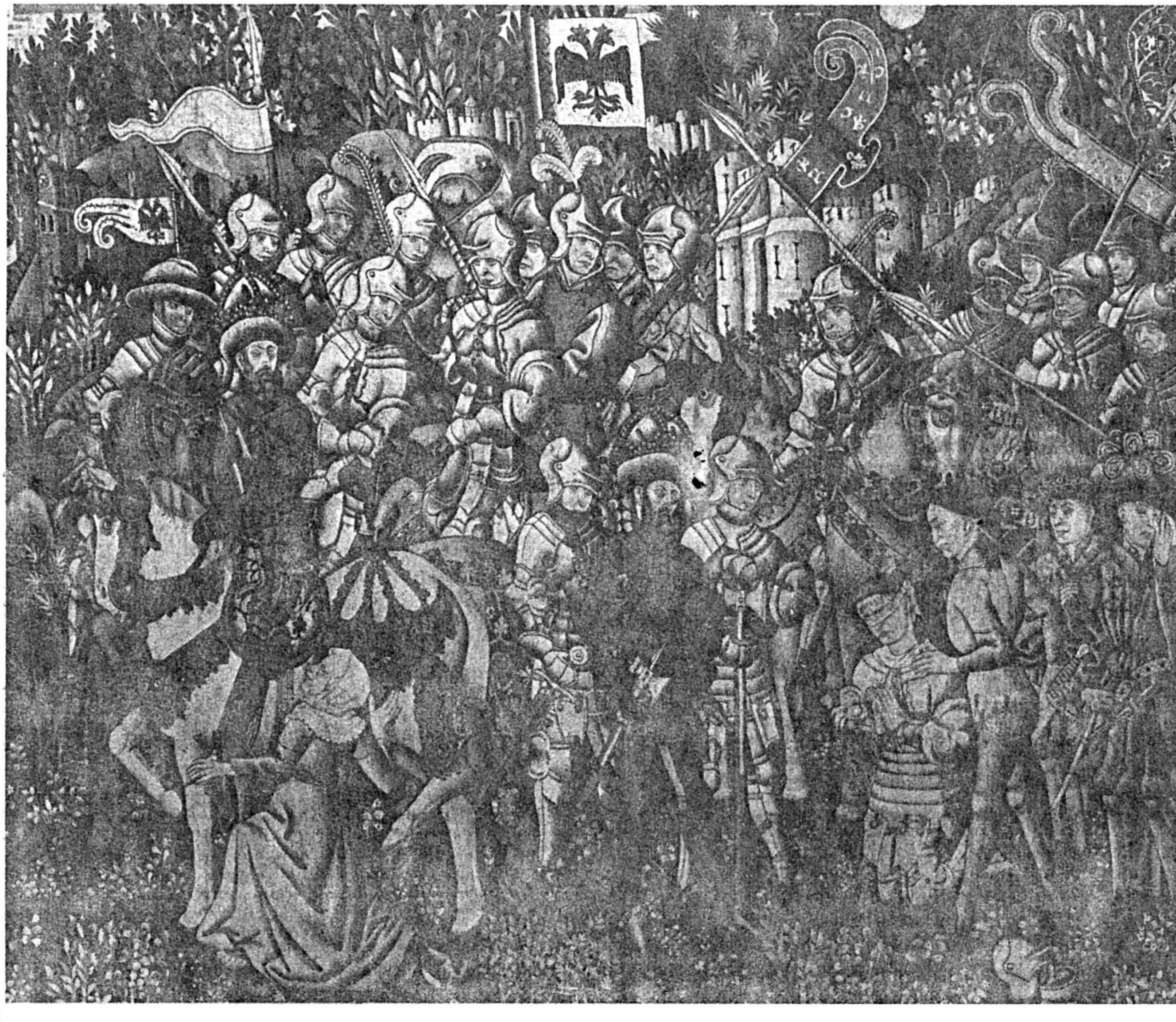
The Burgundian army on the march, as seen by the Swiss chronicler Diebold Schilling in 1477. Carters urge on horses struggling with bombards and smaller field guns, the latter on their own integral carriages, with elevation mechanisms. Beyond them, handgunners march under banners and pennons. Most soldiers wear brigandines or quilted jacks with kettle hats, but the man in the left foreground, impatient for his comrade's flask, has a breastplate and arm harness. Note the trumpeter at the right, with the Burgundian arms on his trumpet banner. All soldiers wear the St. Andrew's cross on chest and back. (Bibliothèque de la Bourgeoisie de Berne)

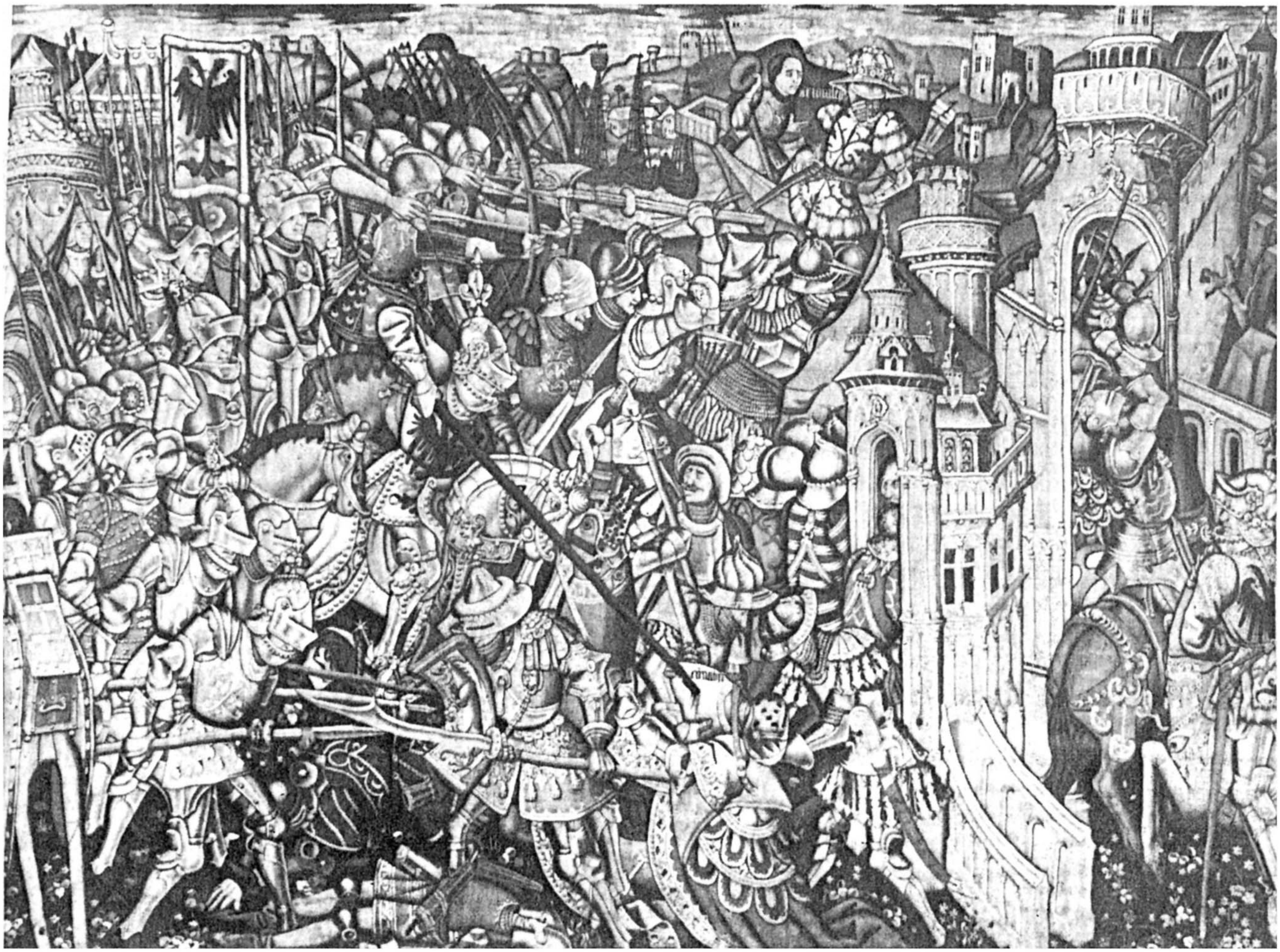
Swiss chronicles. As we have not been able to find a clear illustration of a gun lock as early as this, the firearm has been purposely turned to avoid showing this detail. The Swiss chronicles show what appear to be gourds and powder horns carried by handgunners, and Tschachtlan (c.1474) shows the earliest representation known to us of a ramrod in its classic position under the barrel of the gun.

H2: Mounted archer
A mounted archer, according to the 1471 and 147 ordinances. Note the round-toed boots and th hand-and-a-half sword: this is most likely the 'two handed' sword specified in the ordinance.

H3, H4: Longbowmen
Mercenary longbowmen, taken from the Schillin chronicle. These high-collared padded jackets ar portrayed by Schilling only on Burgundians. Not the very large arrow bag taken from the sam source.

This tapestry depicting the Emperor Trajan was woven in Tournai in c.1450, and is based on a series of paintings by Rogier van der Weyden. All the armour seems to be Italian, and nearly everyone has a sallet, but one soldier is wearing a hat with a bevor. In right foreground, the condemned man's sallet and bevor lie before him, and the executioner has stripped to doublet and hose—the 'points' are clearly seen. (Bern Historical Museum)





One of the four 'Caesar' tapestries. There is strong evidence that they were made for Charles the Bold personally, at Tournai in c.1465–70: Julius Caesar was one of his favourite authors. A great variety of armour and weapons are shown in use. The artist has probably indulged in some fantasy, but it must be remembered that much armour really was embellished with gold and encrusted with precious stones. (Bern Historical Museum)

Further Reading

Richard Vaughan,
- *Philip the Bold*, Longmans, 1962
- *John the Fearless*, Longmans, 1966
- *Philip the Good*, Longmans, 1970
- *Charles the Bold*, Longmans, 1973
- *Valois Burgundy*, Allen Lane

Apart from the above, there is little in English on the subject. For those who read French the following list will provide some fascinating details on the Burgundian armies:

Claude Gaier, *Art et Organization militaires dans le principauté de Liège et le Conté de Looz au Moyen Age*, Brussels, 1968

J. de la Chauvelays, *Les armées des trois premiers ducs de Bourgogne de la maison de Valois*, Paris, 1880

Maj. Charles Brusten, *L'Armée bourguignonne de 1465 à 1468*, Editions Fr. van Muysewinkel, Brussels, 1953

Philippe Contamine, *Guerre Etat et Société à la fin du moyen age*, Mouton, Paris, 1972

F. Lot, *L'Art militaire et les armées au moyen age*, Payot, Paris, 1946

Joseph Garnier, *L'Artillerie des ducs de Bourgogne*, Honoré Champion, Paris, 1895

A. Navereau, *Le logement et les ustensiles des gens de guerre de 1439 à 1789*, Poitier, 1924

Lastly, a study of the fabulous Burgundian booty taken by the Swiss during the Burgundian wars will enthral readers interested in art and artifacts of the 15th century:

Florens Duechler, *Die Burgunderbeute*, Stämpfli, Bern, 1963

Notes sur les planches en couleur

A1 L'emblème de la croix blanche de France se portait à cette époque. Notez le haut-de-chausses déroulé. L'équipement et la façon dont le personnage tient son arbalète sont tirés d'une illustration datant d'environ 1360. **A2** Nommé lieutenant du duc en 1363, le Sire de Sombernon porte l'armure typique de l'époque. Le torse est protégé, sous le surcot armorié, par une 'cote de mail' plutôt que par une cuirasse en une seule pièce. **A3** Cet écuyer porte une cote de mail sans jambières.

B1 Le maréchal commandant le siège de Vellexon porte une armure complète à plates d'excellente qualité sous un surcot armorié; notez la coiffure typique de l'époque. **B2, B3** Un maçon et un canonnier mesurent un boulet de canon en pierre; ils sont en costume civil et le canonnier porte un tablier de cuir – les retours de flammes pouvaient causer des brûlures aux jambes. **B4** Certains documents de l'époque prouvent que les soldats de cette campagne étaient obligés de porter l'inscription 'Dijon' en étoffe rouge et blanche sur leur manche.

C Revêtu d'une armure complète et de tous les insignes héraldiques, comme s'il se préparait à prendre part à un tournoi, le duc porte l'Ordre de la Toison d'Or autour du cou et est accompagné d'un courtisan et d'un trompette, tous deux vêtus de blanc: il fut de mode, à certaines occasions, pour un souverain ou personnage important du moyen âge d'habiller l'ensemble de son entourage en une selue et même couleur, selon son caprice.

D1 Salade de Chef d'escadre à pennon portant les insignes de la 2ème Compagnie, 3ème Escadron. **D2** Drapeau de Bourgogne capturé par les Suisses à Morat en 1476. **D3** Drapeau de la lère Compagnie représentant St Barthélemy. **D4** Drapeau de compagnie représentant St André. **D5** Drapeau de la 3ème Compagnie avec la Croix de Bourgogne. **D6** Guidon d'une compagnie d'arbalétriers de Franche-Comté, capturé à Grandson en 1476. **D7, D8** Drapeau de compagnie représentant St Pierre et St André, capturés à Grandson et Morat respectivement.

E1 Veuglaire; notez la peinture de couleur vive et les petits drapeaux; à l'arrière-plan, une deuxième veuglaire avec, selon toutes les apparences, des coffres de munitions sur un char. **E2** La méthode de construction est révélée par cette bombarde explosée; notez également les pieux et blocs de bois destinés à amortir le recul, ainsi que la méthode d'élévation du canon. **E3** Un canonnier nettoye une serpentine après la bataille; la peinture a été, en grande partie, brûlée. A l'avant-plan, un commissaire vérifie les munitions; les chroniques de Schilling contiennent de nombreuses illustrations de caisses contenant des charges de poudre préparées dans des sacs en toile.

F1 Cette reconstitution est basée sur les Ordonnances Ducales de 1471 et de 1473, ainsi que sur divers objets ayant survécu jusqu'à ce jour. **F2** Ce valet est mieux équipé que la majorité, avec sa cotte de mailles, sa brigandine et son plackart. Il porte la bannière de Louis de Châlons-Châteauguyon, tué à Grandson en 1476. **F3** Le serviteur, en costume civil, tient la lance de Louis.

G1 Notez la housse de l'arbalète, le cranequin, ainsi que le carquois et la pavise décorés. **G2** Un piquier, tel qu'il est décrit dans l'Ordonnance de 1472, s'apprête à traverser un cours d'eau à gué: les détails proviennent de la Chronique de Tschachtlan, aux environs de 1474. **G3** Coustilier habillé à la manière allemande. **G4** Les arbalétriers sont souvent représentés dans des illustrations contemporaines avec une flèche dépassant de l'encolure de leur habit, ce qui leur permettait tirer sans délai.

H1 Détails extraits de chroniques suisses de l'époque. Les détails de l'arme à feu sont obscurs; nous savons toutefois que certaines armes à feu étaient, à l'époque, équipées de boutons de détente, et un manuscrit de 1474 nous montre une arme à baguette fixée sous le canon. **H2** Archer à cheval équipé selon les ordonnances de Bourgogne de 1471 et de 1473. **H3, H4** Archers mercenaires, reproduits de la Chronique de Schilling, qui semblent être les seuls à porter l'habit matelassé à haut col. Notez le grande trousse en toile destinée aux flèches.

Farbtafeln

A1 Zu jener Zeit trug man die französischen Insignien in Form eines weissen Kreuzes. Beachten Sie die heruntergerollten Strümpfe. Seine Ausrüstung und die Art, wie er die Armbrust trägt, sind einem Gemälde von etwa 1360 entnommen. **A2** Der 1363 zum Leutnant des Herzogs ernannte *Sire de Sombernon* trägt die für die damalige Zeit typische Rüstung. Unter dem Wappenrock ist der Torso durch einen Plättchen-Harnisch, nicht durch einen einteiligen Brustharnisch geschutzt. **A3** Dieser Knappe trägt einen Plättchen-Harnisch, seine Beine sind ungeschützt.

B1 Der befehlshabende Marschall bei der Belagerung von Vellexon trägt volle Plattenpanzerung feinster Qualität unter seinem Waffenrock. Beachten Sie die damals übliche Frisur. **B2, B3** Ein Maurer und ein Kanonier vermessen eine Kanonenkugel aus Stein; sie tragen Zivilkleidung, der Kanonier hat eine Lederschürze umgegunden – bei Rückfeuerung von Kanonen hat sich mancher die Beine verbrannt. **B4** Aus alten Schriftstücken ist erwiesen, dass die Soldaten in diesem Feldzug das Wort 'Dijon' in rotem und weissem Stoff an den Armen tragen mussten.

C Der Herzog trägt, wie beim Turnier, volle Rüstung und Wappenschmuck sowie den Orden des Goldenen Vlieses um den Hals. Ein Höfling und ein Trompeter warten ihm auf; beide sind in weiss gekleidet – unter mittelalterlichen Magnaten war es oft Mode, das gesamte Gefolge in der einen oder anderen Farbe, je nach Laune, auszustatten.

D1 Ein *Sallet*-Helm des *Chef d'Escadre* mit Wimpel, der die Insignien der 2. Kompanie, 3. Schwadron trägt. **D2** Flagge von Burgund, die 1476 bei Morat von den Schweizern erbeutet wurde. **D3** Kompanieflagge der 1. Kompanie mit dem Heiligen Bartholomäus. **D4** Kompanieflagge mit dem Heiligen Andreas. **D5** Flagge der 3. Kompanie mit dem Burgunder Kreuz. **D6** Gezackte Fahne einer Armbrustschützen-Kompanie von Franche Comté, die 1476 bei Grandson erbeutet wurde. **D7, D8** Kompanieflaggen mit dem Heiligen Petrus und dem Heiligen Andreas, die jeweils bei Grandson und Morat eingenommen wurden.

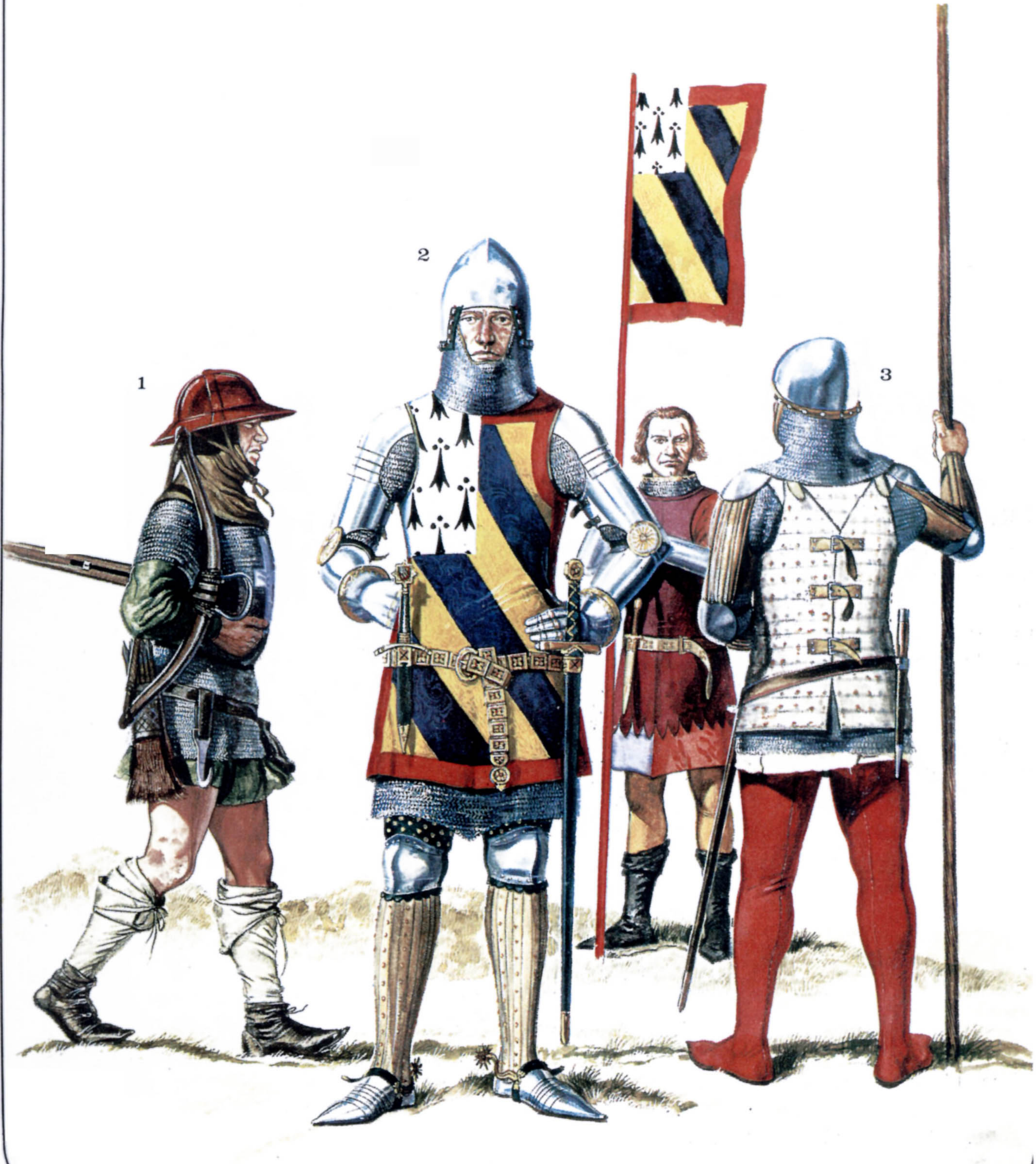
E1 Eine *veuglaire*-Kanone. Beachten Sie die grelle Farbe, kleinen Flaggen und im Hintergrund eine zweite *veuglaire* auf einem Wagen mit etwas, das aussieht wie Munitionskisten. **E2** An dieser zersprungenen *bombarde* erkennt man deutlich, wie sie konstruiert ist. Beachten Sie ausserdem die Holzpfähle und den Block, die den Rückschlag abfangen, sowie die Hebemethode des Fasses. **E3** Ein Kanonier reinigt nach der Schlacht eine *serpentine*-Kanone. Die Farbe ist grösstenteils abgebrannt. Im Vordergrund ein Mann, der die Munition überprüft. In der Schilling-Chronik gibt es viele Bilder von Kisten, die in Leinwandbeuteln fertig verpackte Pulverladungen enthalten.

F1 Eine Rekonstruktion nach den Herzöglichen Ordonanzen von 1471 und 1473 und übriggebliebenen Artikeln. **F2** Dieser Diener ist besser ausgerustet als die meisten: er hat ein Kettenhemd, eine *brigandine* und einen *plackart*. Er trägt das Banner des Louis de Châlons-Châteauguyon, der 1476 bei Grandson fiel. **F3** Der Diener in Zivilkleidung hält die Lanze des Ritter.

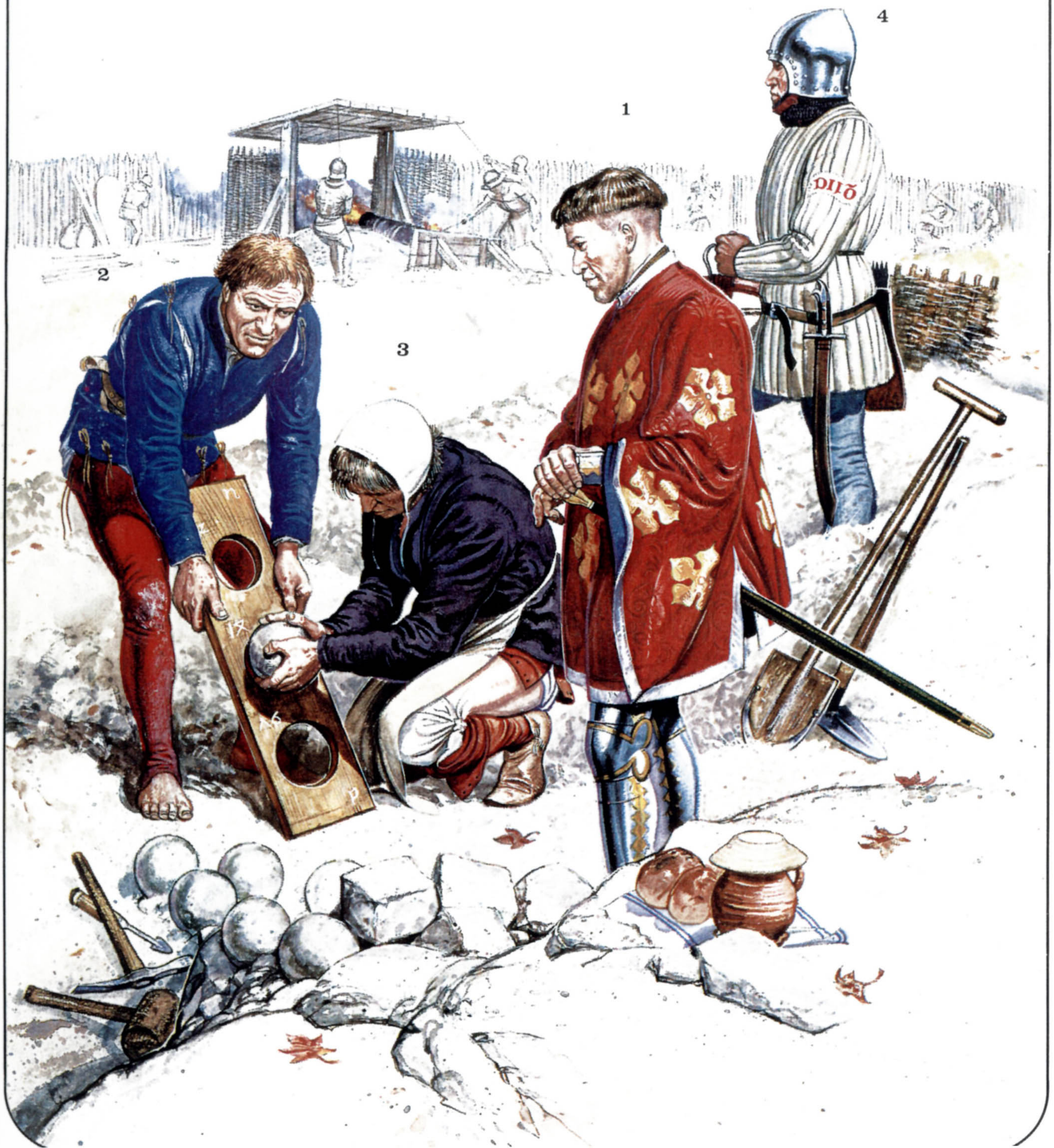
G1 Beachten Sie die Armbrustbedeckung, *cranequin*, sowie den verzierten Kocher und *pavise*. **G2** Ein in der Ordonanz von 1472 beschriebener Pikenier bereitet sich auf die Durchquerung eines Flusses vor: Einzelheiten entnehmen wir der Tschachtlan-Chronik um 1474. **G3** Ein auf deutsche Weise gekleideter *coustillier*. **G4** Auf zeitgenössischen Gemälden sieht man Armbrustschützen oft mit einem Pfeil hinten im Nacken, den sie herausziehen und sofort abschiessen können.

H1 Details entstammen zeitgenössischen schweizer Chroniken. Einzelheiten über das Gewehr sind nicht vollstandig; einige hatten damals aber schon einen Knopfabzug. Ein Manuskript von 1474 zeigt eins, bei dem der Ladestock unter dem Lauf angebracht ist. **H2** Ein Bogenschütze zu Pferde nach den Burgunder Ordonanzen von 1471 und 1473. **H3, H4** Ein Langbogensöldner nach der Schilling-Chronik – nor diese tragen hier die gepolsterten Jacken mit hohem Kragen. Beachten Sie den grossen Leinwandbeutel für die Pfeile.

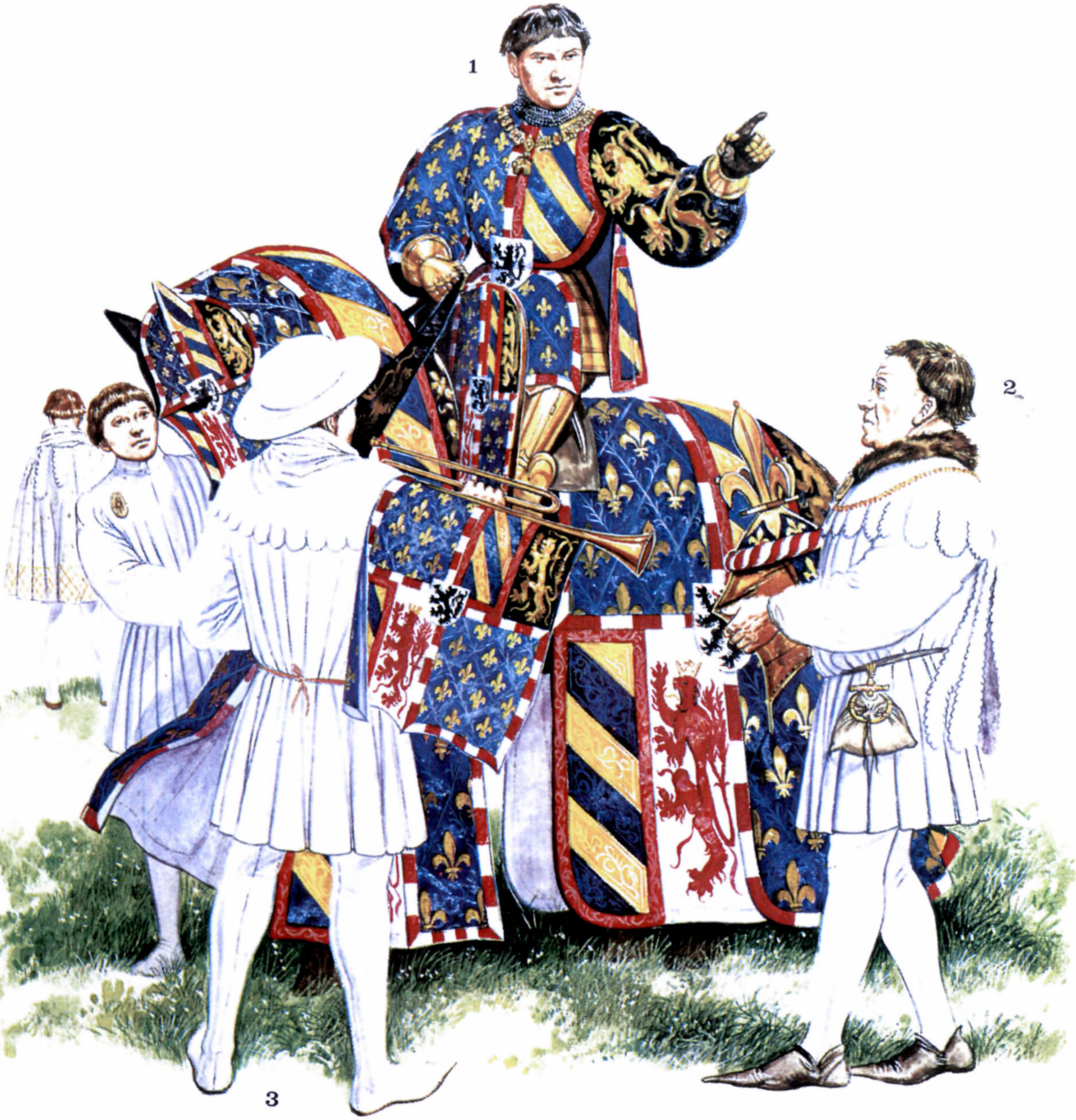
Philip the Bold's army, 1363
1: Garrison crossbowman
2: Jean de Montaigu, Sire de Sombernon
3: Écuyer



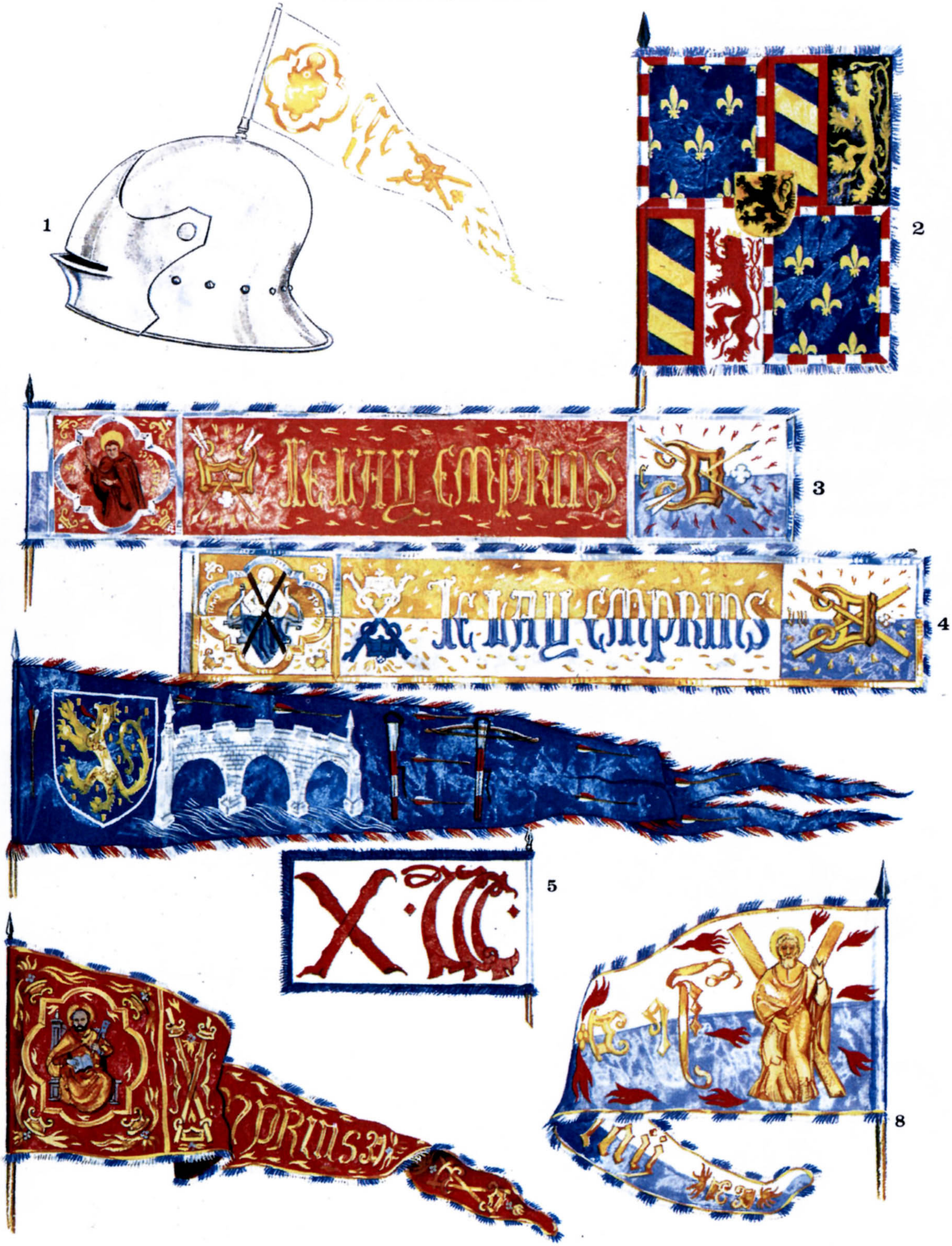
Siege of Vellexon, 1409-10
1: Jean de Vergy, Marshal of Burgundy
2: Mason
3: Gunner
4: Archer



1: Philip the Good, Duke of Burgundy, dressed for the joust
2: Gentleman of the court
3: Trumpeter



The flags of Burgundy:
see commentary for details.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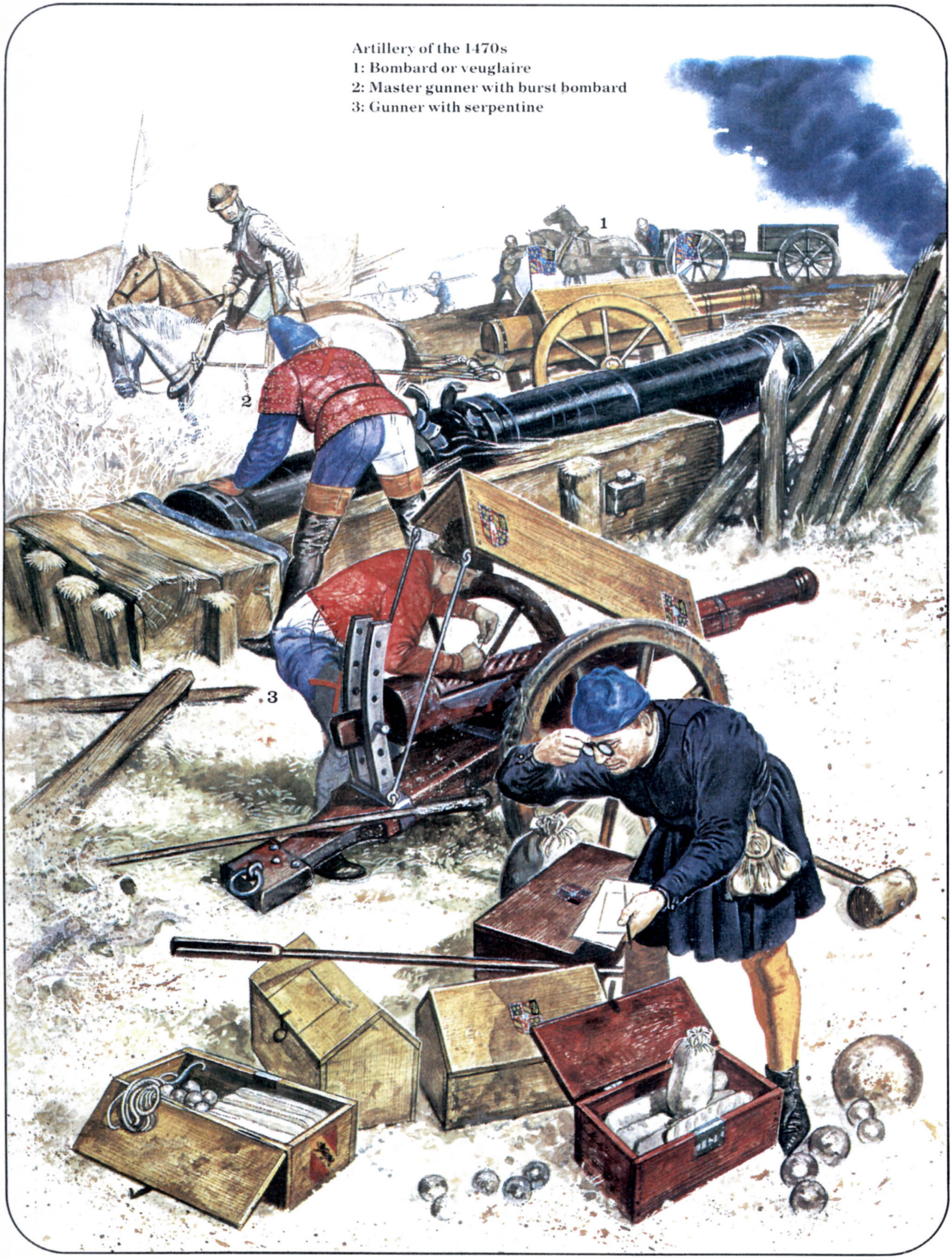


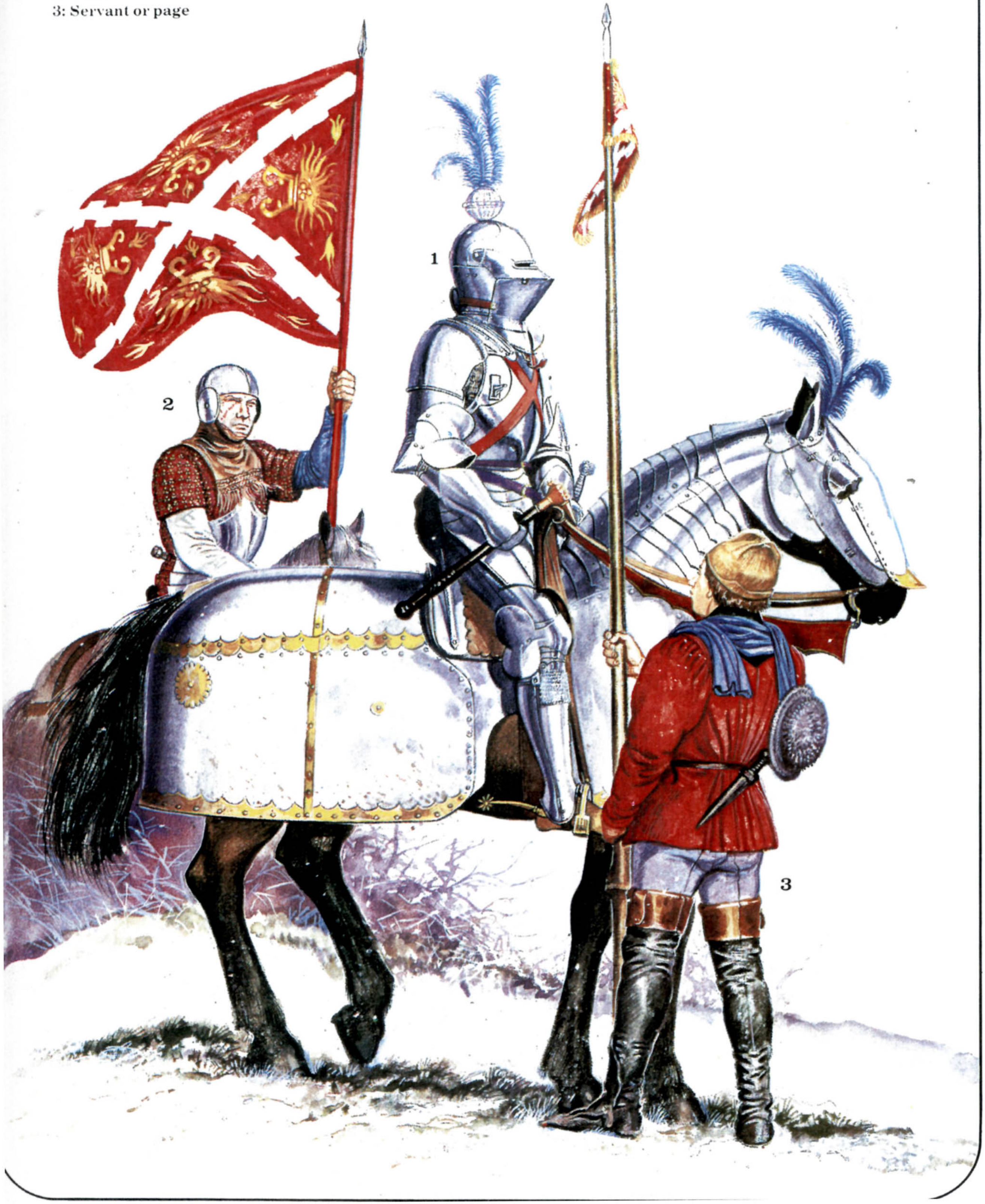
Artillery of the 1470s

1: Bombard or veuglaire

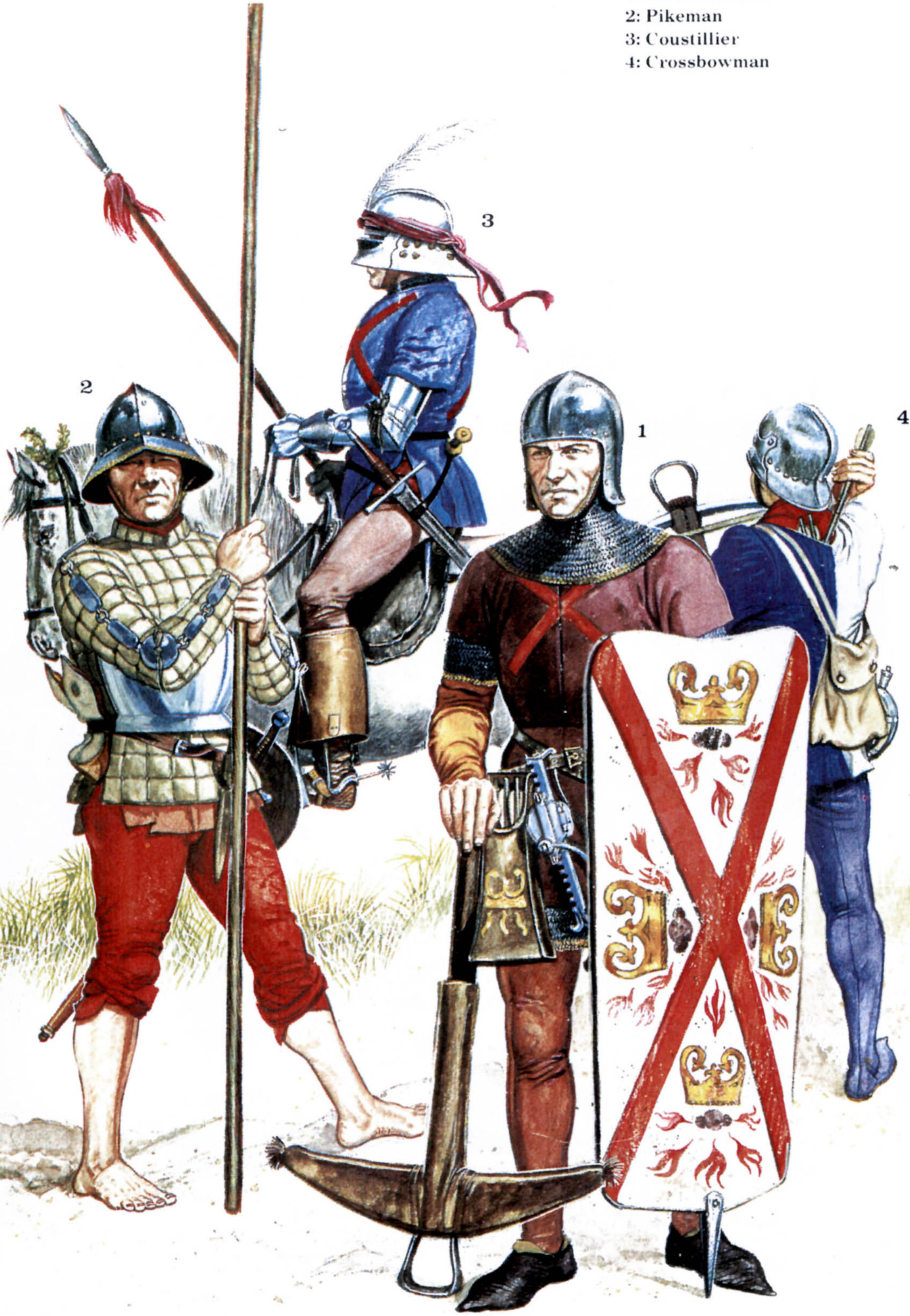
2: Master gunner with burst bombard

3: Gunner with serpentine

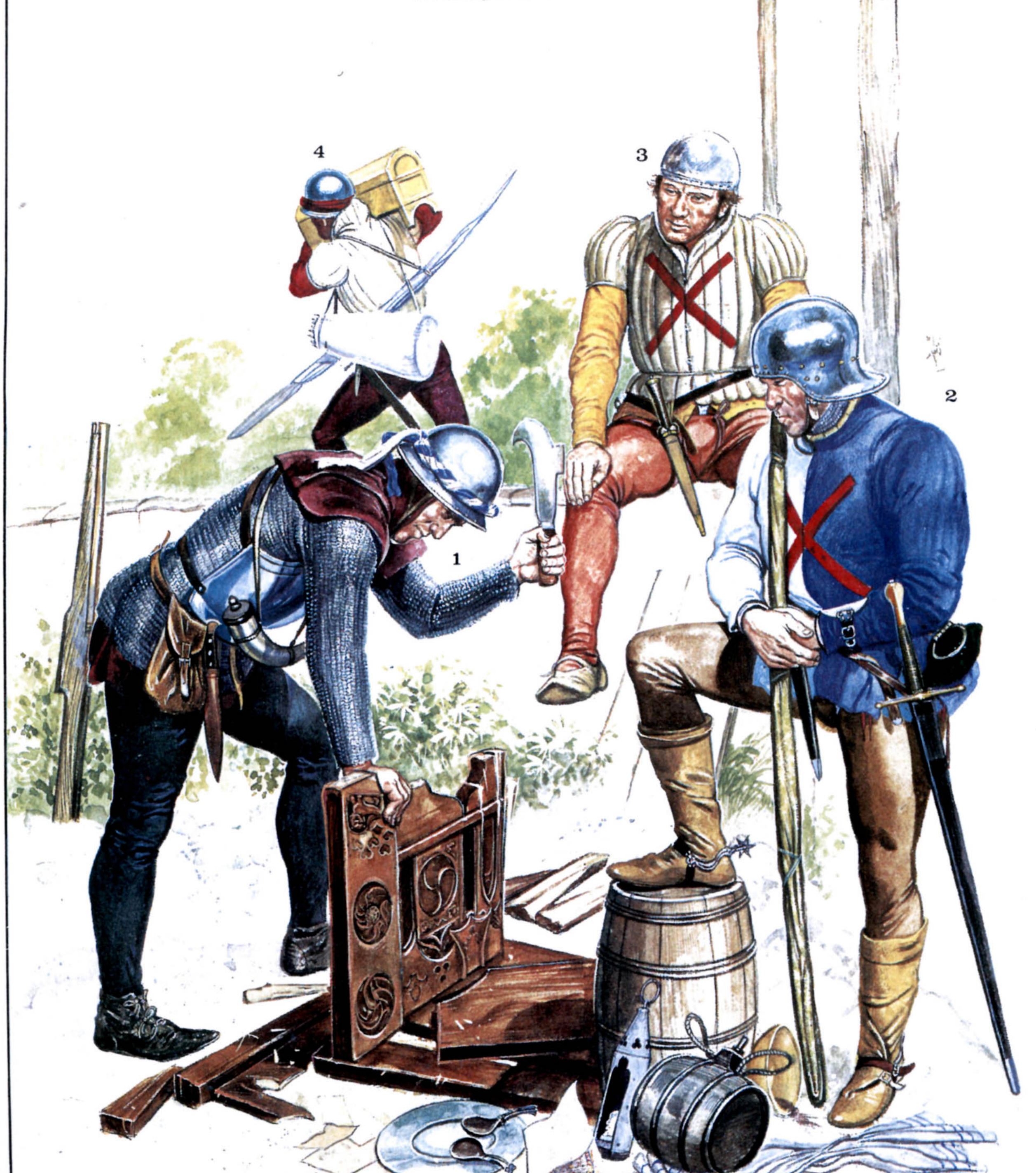
Men of the ordinances, 1471-77
1: Man-at-arms
2: Valet
3: Servant or page



Men of the ordinances, 1471-77
1: Crossbowman
2: Pikeman
3: Coustillier
4: Crossbowman



Men of the ordinances, 1471-77
1: Handgunner
2: Mounted archer
3, 4: Longbowmen



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